Project No. 1251-100

Crude Oil Tank Farms Project, Agrood Area 30 (Module-1)

PETROJET Enppi EGPC

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

| Sr. | Pre-Commissioning and Commissioning Dossier Index | Applicable (Yes/No) |
|---|---|---|
| 1 | Mechanical Completion Certificate (MCC) | |
| 2 | Ready for Startup Certificate (RFSU) | |
| 3 | System Punch Lists | |
| 4 | System Limits Marked Up P&ID | |
| 5 | System Index | |
| 6 | Piping Pre-Commissioning | |
| | 6.01) Piping Test Packs | |
| | 6.02) Piping Pre-commissioning Check Lists | |
| 7 | Piping Commissioning | |
| | 7.01) Service Test, GLT, CLT and N2 Purging Certificates | |
| | 7.02) Piping Commissioning Check Lists | |

| Sr. | Pre-Commissioning and Commissioning Dossier Index | Applicable (Yes/No) |
|---|---|---|
| 8 | Mechanical Pre-Commissioning | |
| | 8.01) System Mechanical Index | |
| | 8.02) Equipment Drawings | |
| | 8.03) Equipment Datasheets | |
| | 8.04) Boxing-up Certificates | |

| | | |
|---|---|---|
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| | 9.04) Mechanical Commissioning Checklists | |
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| | 10.02) Instrument Data Sheets | |
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| | 10.07) Instruments Cables Laying Certificates | |
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| | 10.09) Instruments Cables Testing Certificates | |
| | 10.10) Instruments Calibration Certificates | |
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| **11** | **Instrumentation Commissioning** | |
| | 11.01) Instrumentation Function Test Certificates | |
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| **Sr.** | **Pre-Commissioning and Commissioning Dossier Index** | **Applicable (Yes/No)** |
| **12** | **Electrical Pre-Commissioning** | |
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| | 12.04) Electrical Cables Schedule | |
| | 12.05) Electrical Cables Laying Certificates | |
| | 12.06) Electrical Cables Testing Certificates | |
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| | 12.11) Electrical Supplier Check Lists & Reports | |

| | | |
|---|---|---|
| **13** | **Electrical Commissioning** | |
| | 13.01) Electrical -Commissioning Check Lists | |
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| | | |
| **14** | **Red Marked-up Drawings** | |
| | 14.01) P&ID | |
| | 14.02) Instrumentation Drawings | |
| | 14.03) Electrical Drawings | |

Enppi PETROJET بتروجت

Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

Petroleum Pipelines Company
شركة أنابيب البترول

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

## Pre-commissioning and Commissioning Dossier Content:

| Section | Description | | Status | |
|---|---|---|---|---|
| 1- | Mechanical Completion Certificate (MCC) Ready For Start-up (RFSU) | | | |
| 2- | System Punch Lists | | | |
| 3- | System Limits Marked Up | | | |
| 4- | FAT Test Report & Certificates | | | |
| 5- | System Index. | | | |
| 6.A- | Electrical Pre-commissioning | | | |
| | 6.A.1 | General Arrangement and Wiring Diagrams | | |
| | 6.A.2 | Single line Diagram | | |
| | 6.A.3 | Electrical Panel Schedule | | |
| | 6.A.4 | Electrical Cable Schedule | | |
| | 6.A.5 | Pre-Commissioning Check List | | |
| 6.B- | Electrical Commissioning | | | |
| | 6.B.1 | Commissioning Check List | | |
| 7- | Red Mark-Up Drawings (If Any) | | | |

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 1-Mechanical Completion Certificate (MCC)

PETROJET بتروجت

Enppi

EGPC

# SYSTEM MECHANICAL COMPLETION CERTIFICATE (MCC)

| | | |
|---|---|---|
| **PROJECT TITLE** | : | CRUDE OIL TANK FARM PROJECT (AGROOD AREA) |
| **PROJECT No** | : | 01251-100 |
| **SYSTEM NAME** | : | Substation Power Transformers 11/6.6kV |
| **SYSTEM ID** | : | 030-EL-001 |

**THIS IS TO CERTIFY THAT:**

- **THE ABOVE SYSTEM HAS BEEN FABRICATED, ERECTED, INSTALLED AND TESTED TO THE REQUIREMENTS OF THE CONTRACT DRAWINGS, SPECIFICATIONS, THE APPLICABLE CODES AND STANDARDS.**
- **ALL PRE-COMMISSIONING RELEVANT ACTIVITIES, TESTS, INSPECTIONS AND CHECKS HAVE BEEN CARRIED OUT FOR THIS SYSTEM AND FOUND ACCEPTABLE.**
- **Q/C DOCUMENTATION OF THE ABOVE SYSTEM HAS BEEN AUDITED BY THE CUSTOMER SITE QUALITY CONTROL AND FOUND COMPLETED.**
- **ALL PUNCH LIST ITEMS CATEGORY (A) IN THIS SUBSYSTEM WERE CLEARED.**
- **THIS SYTEM IS MECHANICALLY COMPLETED ON THE DATE AND READY FOR COMMISSIONING (RFC) WITH THE FOLLOWING EXCEPTIONS.**

**EXCEPTIONS :**

| **COMPANY** | **PETROJET** | **ENPPI** | **PMC** |
|---|---|---|---|
| **NAME** | Sobhy Seleem | Mohamed Abbas | Mohamed Ibrahim |
| **TITLE** | QC E&I engineer | Construction Mgr. | Elec. engineer |
| **SIGNATURE** | | | |
| **DATE** | 31/8/2021 | | 31/8/2021 |

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 2- Ready for Startup Certificate (RFSU)

Enppi

# READY FOR START UP CERTIFICATE

| | | |
|---|---|---|
| PROJECT TITLE | : | EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-30) |
| PROJECT No. | : | 1251-100 |
| SYSTEM /AREA /PLANT | : | Substation Power Transformers 11/6.6kV |
| SYSTEM /AREA /PLANT No. | : | 030-EL-001 |

THIS IS TO CERTIFY THAT:

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

**EXCEPTIONS :**

| COMPANY | ENPPI | PPC |
|---|---|---|
| NAME | Ahmed El Shafie | Mohamed Ibrahim |
| TITLE | Commissioning Manager | Elec. engineer |
| SIGNATURE | Shaf | |
| DATE | 17-6-2021 | |

10000-000-EK8-FRM-0006 (03/15)

PETROJET Enppi EGPC

# READY FOR START UP CERTIFICATE

| | |
|---|---|
| PROJECT TITLE | : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-02) |
| PROJECT No. | : 1251-100 |
| SYSTEM /AREA /PLANT | : Substation Power Transformers 11/6.6kV |
| SYSTEM /AREA /PLANT No. | : 030-EL-001 |

**THIS IS TO CERTIFY THAT:**

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

**EXCEPTIONS :**

* RFSU for (30-SUB-PTR-1A) to be done after solving leakage problem.

| COMPANY | CONSORTIUM | PPC |
|---|---|---|
| NAME | Ahmed El Shafie | |
| TITLE | Commissioning Mgr | |
| SIGNATURE | Shafie | |
| DATE | 17-6-2021 | |

10000-000-EK8-FRM-0006 (03/15)

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 3- System Punch Lists

PETROJET بتروجت | Enppi | **PUNCH LIST** | EGPC

**PROJECT TITLE :** CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

| | |
|---|---|
| **PROJECT NUMBER :** 01251-100 | **DISCIPLINE:UTILITIES** |
| **SYSTEM NAME: Substation Power Transformers 11/6.6kV System** | **SYSTEM ID:** 030-EL-001 |
| **SUB-SYSTEM NAME:** | **SUB-SYSTEM ID:** |

| NO | DESCRIPTION | CAT | ACTION BY | DISP | CLEARANCE APPROVED BY | |
|---|---|---|---|---|---|---|
| 1. | All Cables to be installed and tested | A | PTJ | ELE | | |
| 2. | power transformer Accessories to be installed | A | PTJ/Enppi | ELE | | |
| | by vendor & oil filling [Enppi/PTJ] | ~~A~~ | | | | |
| 3 | NER to be Aligned properly | B | PTJ | ELE | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |
| | | | | | | |

CAT: CATEGORY(A,B,C) ,ACTION BY: (ENPPI,CONST.CONTRACTOR,SUPPLIER.....) , DISP: DESCIPLINE(PIP,MECH,ELECT,INST.....)

| COMPANY | PTJ | ENPPI | PMC |
|---|---|---|---|
| NAME | Sabry Seleem | Ram | |
| SIGN. | | | |
| DATE | 6-4-2021 | | |

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 4- System Limits Marked Up P&ID

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 5- System Index

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 6- Piping Pre-Commissioning

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 6.01- Piping Test Packs

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 6.02- Piping Pre-commissioning Check Lists

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 7- Piping Commissioning

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 7.01- Service Test, GLT, CLT and N2 Purging Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 7.02- Piping Commissioning Check Lists

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8- Mechanical Pre-Commissioning

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8.01- System Mechanical Index

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8.02- Equipment Drawings

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8.03- Equipment Datasheets

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8.04- Boxing-up Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8.05- Grouting Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8.06- Pre-Alignment Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 8.07- Mechanical Pre-Commissioning Checklists

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 9- Mechanical Commissioning

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 9.01- Final Alignment Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 9.02- Motor Solo Run Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 9.03- Mechanical Run Test (MRT) Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 9.04- Mechanical Commissioning Checklists

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 9.05- Mechanical Supplier Check Lists & Reports

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10- Instrumentation Pre-Commissioning

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.01- System Instrument Index

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.02- Instrument Data Sheets

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.03- Instrument Cable Schedule

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.04- System Instrumentation Wiring Diagram

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.05- Hook-up Drawing (Mechanical & Pneumatic)

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.06- Instruments Cables Schedule

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.07- Instruments Cables Laying Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.08- Instruments Cables Termination Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.09- Instruments Cables Testing Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.10- Instruments Calibration Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.11- Instrument Loop Checks Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.12- Instrumentation Pre-Commissioning Check Lists

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 10.13- Instrumentation Supplier Check Lists & Reports

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 11- Instrumentation Commissioning

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 11.01- Instrumentation Function Test Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 11.02- Instrumentation Supplier Check Lists & Reports

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12- Electrical Pre-Commissioning

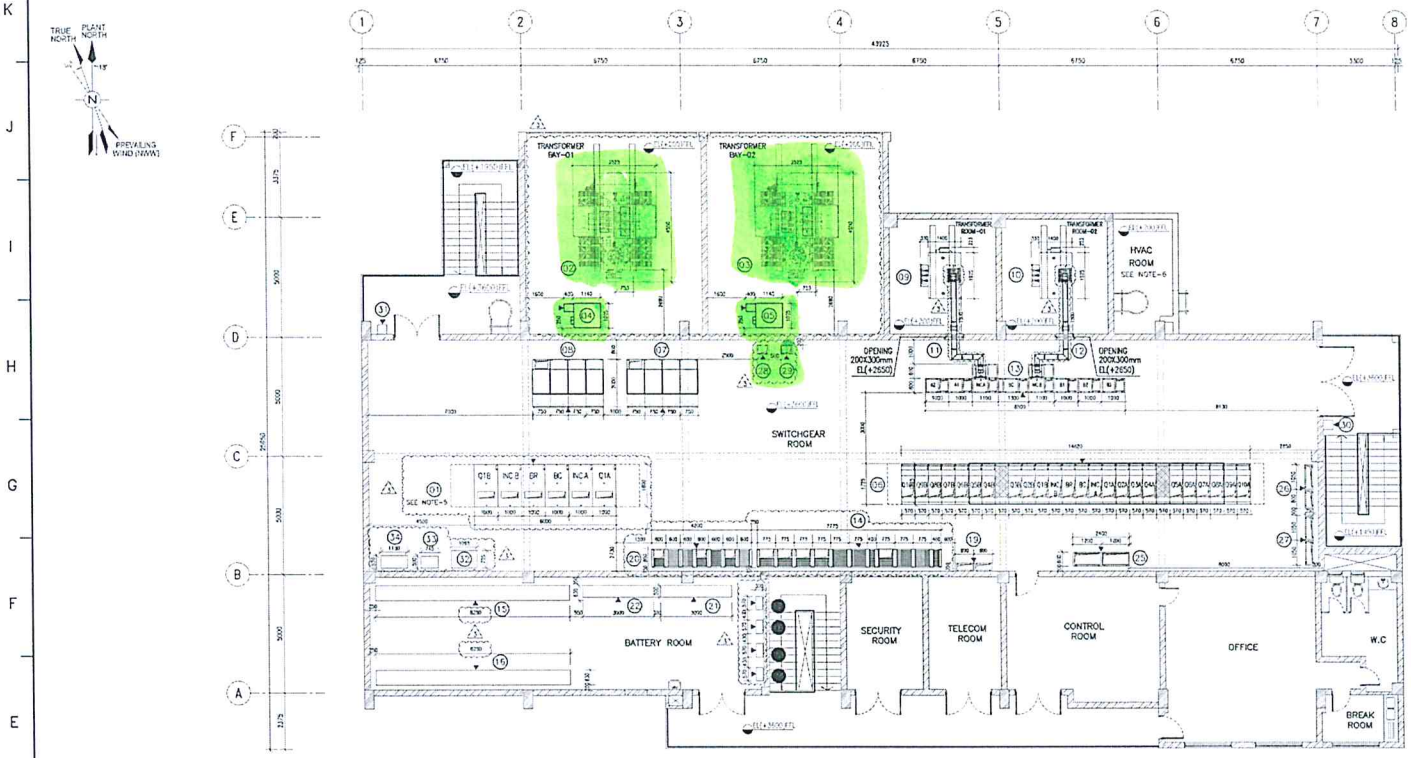
| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.01- System Electrical Index

| system no | System Description | | | | | |
|---|---|---|---|---|---|---|
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P/1-030-SUB-PTR-1A | HV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P/1-030-SUB-PTR-1B | HV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P/2-030-SUB-PTR-1A | HV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P/2-030-SUB-PTR-1B | HV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P/3-030-SUB-PTR-1A | HV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P/3-030-SUB-PTR-1B | HV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | C1-030-SUB-AVR-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | C1-030-SUB-AVR-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | C2-030-SUB-PTR-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | C2-030-SUB-PTR-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | C3-030-SUB-AVR-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | C3-030-SUB-AVR-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | G1-030-SUB-NER-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | G1-030-SUB-NER-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | G2-030-SUB-NER-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | G2-030-SUB-NER-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P-030-SUB-AVR-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P-030-SUB-AVR-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P1-030-SUB-NER-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P1-030-SUB-NER-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P1-030-SUB-PTR-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P1-030-SUB-PTR-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P2-030-SUB-PTR-1A | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | P2-030-SUB-PTR-1B | LV Cable | Checklist | EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | 030-SUB-NER-1A | Substation Neutral Earthing Resistors | Checklist | EL-09 A /EL-30 A /EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | 030-SUB-NER-1B | Substation Neutral Earthing Resistors | Checklist | EL-09 A /EL-30 A /EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | 030-SUB-PTR-1A | Substation Power Transformers 11/6.6kV | Checklist | EL-02 A /EL-30 A /EL-31 A |
| 030-EL-001 | Substation Power Transformers 11/6.6kV System | Electrical | 030-SUB-PTR-1B | Substation Power Transformers 11/6.6kV | Checklist | EL-02 A /EL-30 A /EL-31 A |

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

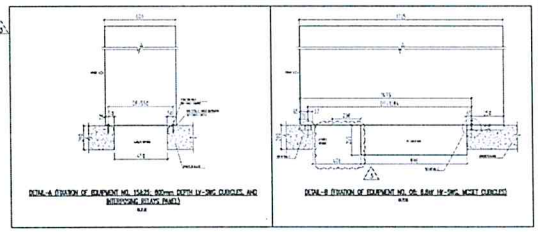
# 12.02- Electrical Drawings

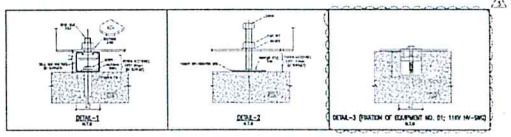



## ELECTRICAL EQUIPMENT LIST

| EQUIPMENT NO. | EQUIPMENT TAG | DESCRIPTION | FIXATION |
|---|---|---|---|
| 01 | 030-SUB-MVSWG-11 | 11KV, 1250A AIR INSULATED SWITCHGEAR | FLOOR |
| 02 | 030-SUB-PTR-1A | 11/6.6KV, 5MVA OIL POWER TRANSFORMER | FLOOR |
| 03 | 030-SUB-PTR-1B | 11/6.6KV, 5MVA OIL POWER TRANSFORMER | FLOOR |
| 04 | 030-SUB-NGR-1A | 6.6/3KV, 200A/10SEC NEUTRAL EARTHING RESISTOR | FLOOR |
| 05 | 030-SUB-NGR-1B | 6.6/3KV, 200A/10SEC NEUTRAL EARTHING RESISTOR | FLOOR |
| 06 | 030-SUB-MVSWG-6.6 | 6.6KV, 1250A AIR INSULATED SWITCHGEAR | FLOOR |
| 07 | 030-SUB-PFC-1A | 6.6KV, 360KVAR POWER FACTOR CORRECTION | FLOOR |
| 08 | 030-SUB-PFC-1B | 6.6KV, 360KVAR POWER FACTOR CORRECTION | FLOOR |
| 09 | 030-SUB-TR-1A | 6.6/0.4KV, 1000KVA DRY-TYPE DISTRIBUTION TRANSFORMER | FLOOR |
| 10 | 030-SUB-TR-1B | 6.6/0.4KV, 1000KVA DRY-TYPE DISTRIBUTION TRANSFORMER | FLOOR |
| 11 | 030-SUB-LVBD-1A | 0.4KV, 2000A LOW VOLTAGE BUS DUCT | ---- |
| 12 | 030-SUB-LVBD-1B | 0.4KV, 2000A LOW VOLTAGE BUS DUCT | ---- |
| 13 | 030-SUB-LVSWG-1 | 0.4KV, 2000A AIR INSULATED SWITCHGEAR | FLOOR |
| 14 | 030-SUB-ACUPS-1 | 400VAC, 50KVA AC UNINTERRUPTED POWER SUPPLY | FLOOR |
| 15 | 030-SUB-ACUPS-1-BATT-A | BATTERY RACK-A FOR AC UPS | FLOOR |
| 16 | 030-SUB-ACUPS-1-BATT-B | BATTERY RACK-B FOR AC UPS | FLOOR |
| 17 | 030-SUB-ACUPS-CB-A | BATTERY RACK-A CIRCUIT BREAKER BOX FOR AC UPS | WALL |
| 18 | 030-SUB-ACUPS-CB-B | BATTERY RACK-B CIRCUIT BREAKER BOX FOR AC UPS | WALL |

| EQUIPMENT NO. | EQUIPMENT TAG | DESCRIPTION | FIXATION |
|---|---|---|---|
| 19 | 030-SUB-UPDP-1 | UPS POWER DISTRIBUTION PANEL | WALL |
| 20 | 030-SUB-DCUPS-1 | 110VDC, 75A DC UNINTERRUPTED POWER SUPPLY | FLOOR |
| 21 | 030-SUB-DCUPS-1-BATT-A | BATTERY RACK-A FOR DC UPS | FLOOR |
| 22 | 030-SUB-DCUPS-1-BATT-B | BATTERY RACK-B FOR DC UPS | FLOOR |
| 23 | 030-SUB-DCUPS-CB-A | BATTERY RACK-A CIRCUIT BREAKER BOX FORDC UPS | WALL |
| 24 | 030-SUB-DCUPS-CB-B | BATTERY RACK-B CIRCUIT BREAKER BOX FOR DC UPS | WALL |
| 25 | 030-SUB-IRP-1 | INTERPOSING RELAY PANEL | FLOOR |
| 26 | 030-SUB-ASP-1 | AUXILIARY SERVICE PANEL | FLOOR |
| 27 | 030-SUB-LPDP-1 | INDOOR LIGHTING AND SMALL POWER DISTRIBUTION PANEL | FLOOR |
| 28 | 030-SUB-AVR-1A | AVR PANEL FOR ON-LOAD TAP CHANGER OF 030-SUB-PTR-1A | WALL |
| 29 | 030-SUB-AVR-1B | AVR PANEL FOR ON-LOAD TAP CHANGER OF 030-SUB-PTR-1B | WALL |
| 30 | 030-SUB-EPS-1 | SUBSTATION EMERGENCY PUSH BUTTON | WALL |
| 31 | 030-SUB-EPS-2 | SUBSTATION EMERGENCY PUSH BUTTON | WALL |
| 32 | ------ | 6.6kV HV SWG LIFTING TRUCK | ---- |
| 33 | ------ | 6.6kV HV SWG EARTHING TRUCK | ---- |
| 34 | ------ | LV SWG LIFTING TRUCK | ---- |




### REFERENCE DRAWING AND DOCUMENTS

| | |
|---|---|
| 01251-100-030-KPP-002 | AGROOD AREA (MODULE-1) PLOT PLAN |
| 01251-100-030-AEL-001 | AGROOD AREA (MODULE-1) MASTER EQUIPMENT LIST |
| 01251-100-030-CBD-221 | SUBSTATION CELLAR FLOOR PLAN |
| 01251-100-030-CBD-222 | SUBSTATION FIRST FLOOR PLAN |
| 01251-100-030-KEE-001 | AGROOD AREA (MODULE-1) GENERAL ELECTRICAL SINGLE LINE DIAGRAM |
| 01251-100-000-KEE-002 | ELECTRICAL SINGLE LINE DIAGRAM 6.6kV HIGH VOLTAGE MOTOR CONTROL CENTER |
| 01251-100-000-KEE-003 | ELECTRICAL SINGLE LINE DIAGRAM LOW VOLTAGE MOTOR CONTROL CENTER |
| 01251-100-000-EDB-001 | ELECTRICAL DESIGN BASIS |

### NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. ALL ELEVATIONS ARE IN MILLIMETERS.
3. THIS DRAWING IS CONCERNED ONLY WITH SUBSTATION ELECTRICAL EQUIPMENT.
4. ALL EQUIPMENT SHALL BE BOTTOM ENTRY UNLESS OTHERWISE INDICATED.
5. EQUIPMENT NO.1 SHALL BE SUPPLIED AND INSTALLED BY EGPC/CANAL ELECTRICAL DISTRIBUTION COMPANY.
6. ELECTRICAL EQUIPMENTS INSIDE HVAC ROOM (HVAC MCC & LCP) SHALL BE SUPPLIED AND INSTALLED BY PETROJET.

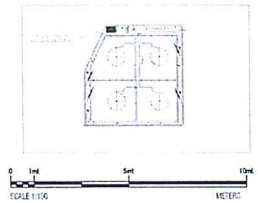
### LEGEND

ELECTRICAL EQUIPMENT
FUTURE ELECTRICAL EQUIPMENT
GLAND PLATE
EQUIPMENT FRONT
EQUIPMENT NUMBER
DUMMY PANEL

### ABBREVIATIONS

| | | | |
|---|---|---|---|
| AC | ALTERNATING CURRENT | HV | HIGH VOLTAGE |
| AVR | AUTOMATIC VOLTAGE REGULATOR | INC | INCOMMER CIRCUIT BREAKER |
| BC | BUS COUPLER CIRCUIT BREAKER | LV | LOW VOLTAGE |
| BR | BUS RISER | O | OUTGOING CIRCUIT BREAKER |
| CB | CIRCUIT BREAKER | SWG | SWITCHGEAR |
| DC | DIRECT CURRENT | UPS | UNINTERRUPTIBLE POWER SYSTEM |
| DF | DISTANCE BETWEEN FIXATION POINTS | | |

### KEY PLAN




| REV | DATE | DESCRIPTION | BY | CHECKED | DESIGNED | APPROVED |
|---|---|---|---|---|---|---|
| 3 | 24.05.20 | RE-ISSUED FOR CONSTRUCTION | R.M | SH.A | M.R | M.A |
| 2 | 05.05.20 | ISSUED FOR CONSTRUCTION | M.M.A | SH.A | M.R | M.A |
| 1 | 11.11.19 | RE-ISSUED FOR DESIGN | M.M.A | SH.A/M.A | M.A.R | H.A |
| 0 | 09.11.19 | ISSUED FOR DESIGN | M.M.A | SH.A/M.A | M.A.R | H.A |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THE EGYPTIAN GENERAL PETROLEUM CO.
EGPC
الهيئة العامة المصرية للبترول

FOR : THE EGYPTIAN GENERAL PETROLEUM CORPORATION (EGPC) لاجل الهيئة العامة المصرية للبترول

AT : AGROOD الموقع : عجرود

# EGPC CRUDE OIL TANK FARM AGROOD AREA (MODULE-1) SUBSTATION ELECTRICAL EQUIPMENT LAYOUT

الشركة الهندسية للصناعات البترولية والكيماوية
Enppi إنبي
ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES

| SCALE | ENPPI DRAWING NUMBER | SHEET | REVISION |
|---|---|---|---|
| 1:100 | 01251-100-030-EEB-001 | 1 OF 1 | 3 |

Enppi



# SUPPLIER'S DOCUMENT COVER PAGE (FOR A4/A3 DOCUMENTS ONLY)

| | |
|---|---|
| SUPPLIER'S NAME : | Schneider Electric Egypt |
| PURCHASE ORDER No : | 01251-100-510-54-38 |
| DOCUMENT TITLE : | 000-SUB-NER-1A/B GA Drawings (Typical) |
| TOTAL No OF PAGES : | Cover page + 05 |
| SUPLLIER'S ORDER No : | |

| SUPPLIER'S OWN DOCUMENT No | SUPPLIER'S REVISION | DATE | SUPPLIER APPROVAL SIGNATURE |
|---|---|---|---|
| | 00 | 14/06/2020 | Mahmoud Reda |
| | 01 | 30/06/2020 | Mahmoud Reda |
| | 02 | 07/07/2020 | Mahmoud Reda |
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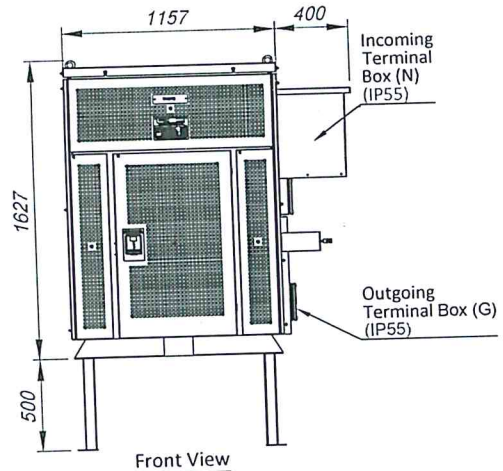
NAME: Shehab Awad

SIGNATURE: DATE : 08/07/2020

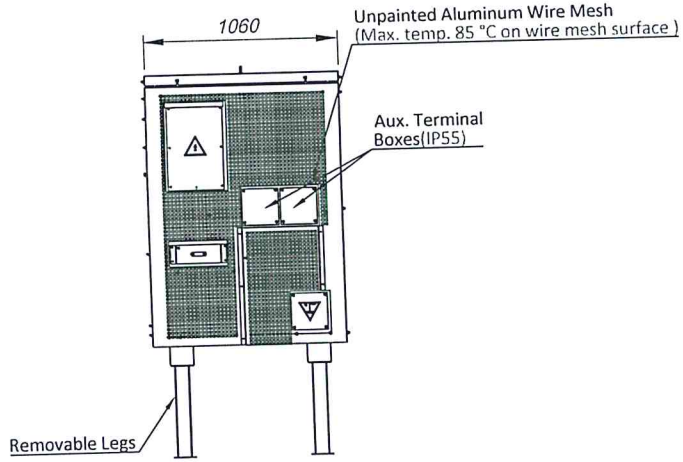
| | | |
|---|---|---|
| PROJECT TITLE | : | EGPC - Crude Oil Tank Farms (Main Transformer) |
| ENPPI PROJECT NUMBER | : | 01251-100 |
| PACKAGE DESCRIPTION | : | Power Transformers |
| EQUIPMENT TAG | : | |
| CODE IDENTIFIER | : | D99 |

| DOCUMENT NUMBER | REV |
|---|---|
| 01251-100-S38-D99-0005 | 2 |

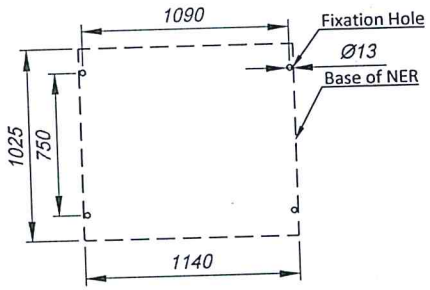
10000-Z-000-PM1-FRM-0033 (11/14)



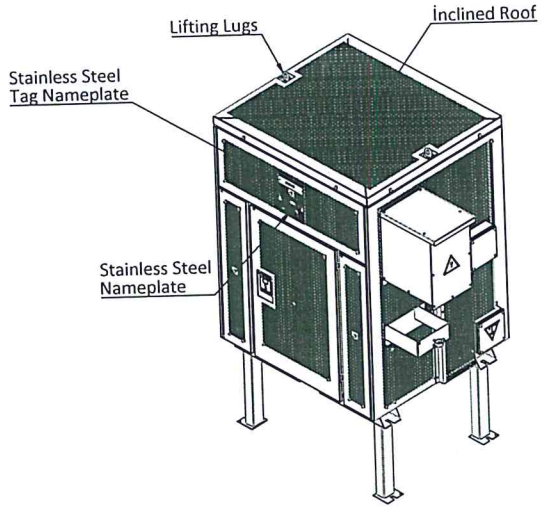

Front View




Side View




Fixation to Concrete




as per **ANSI / IEEE 32-1972**

| | | | |
|---|---|---|---|
| Electrical Characteristics | Operation Voltage | 6,6 / √3 (±10%) (50 Hz ±5% ) | kV |
| | Insulation Level (B.I.L.) | 7,2 / 20 / 60 | kV |
| | Resistance Value @ 48°C | 19 (± 5 %) | Ω |
| | Rated Fault Current | 200 | A |
| | Rated Time "On" | 10 | Se |
| | Rated Continuous Current | 20 | A |
| | Duty Cycle | 200 A 10 Sec. 3 Times per Hour | - |
| | Max. Ambient Temperature | ≤ 55 | °( |
| | Max. Temperature Rise | ≤ 500 | °( |
| Resistance | Max. Resistance Variation | ≤ 60 | °( |
| | Resistor Material | CrNi Stainless Steel | |
| | Resistor Type | Grid | |
| Enclosure | Incoming Terminal | Side | |
| | Outgoing Terminal | Side | |
| | Enclosure Protection Degree | IP 23 (Outdoor & Indoor) | |
| | Enclosure Material | 2 mm Hot Dip Galvanized Steel | |
| | Painting / Min. Thickness | RAL 7035 / ≥ 50 µm | |
| | Net Weight | ≈ 330 | |

Current Transformer (s)

200 / 1 A, 5P20, 15 VA, 1 pc.
---
---

Voltage Transformer (s)

---
---
---

| | | |
|---|---|---|
| Accessories | Disconnector Switch | --- |
| | Lightning Arrester | --- |
| | Grounding Transformer | --- |
| | Over Current Relay (51N) | CME-420 (Brand, Bender) |
| | Over Voltage Relay | --- |
| | Sensing Resistor | --- |
| | Heater & Thermostat | 100 W 230 Vac |

Related Standards

| | |
|---|---|
| - Main Standard | ANSI / IEEE 32- 1972 |
| - Insulation (B.I.L.) | IEC 60071-1 & IEC 60071 |
| - Post Insulator ( > 1 kV) | IEC 60273 |
| - Insulated Bushing ( >1 kV) | IEC 60137 |
| - Protection Degree | IEC 60529 |
| - Current Transformer | IEC 61869-2 |
| - Voltage Transformer | IEC 61869-3 |
| - HV Switchgear & Controlgear | IEC 62271 series |
| - Lightning Arrester | IEC 60099-4 |
| - Galvanization | EN 10346 |

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|---|---|---|---|---|
| 05 | 07.07.2020 | C.C. | M.B. | S.C. |
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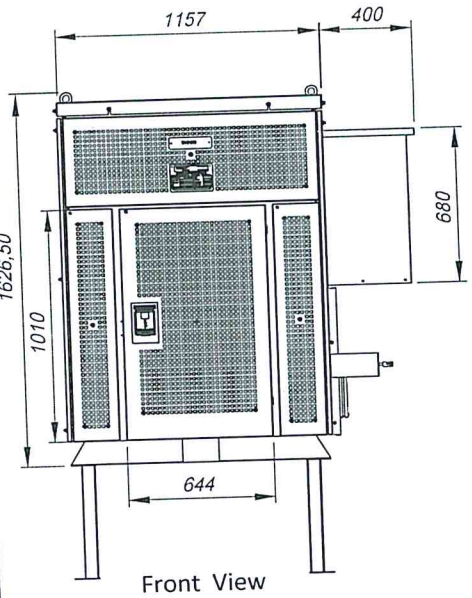
| 02 | 11.06.2020 | C.C. | M.B. | S.C. |
| 01 | 16.03.2020 | A.Y. | M.B. | S.C. |
| 00 | 18.01.2020 | Y.O. | M.B. | S.C. |

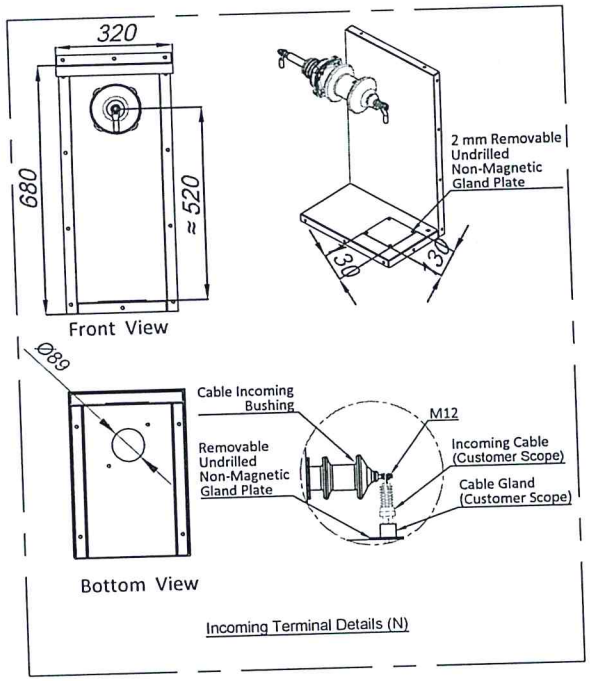
Product (Ürün): 6,6 /√3 kV 19 Ohm 200 A 10 Sec. NEUTRAL EARTHING RESISTOR

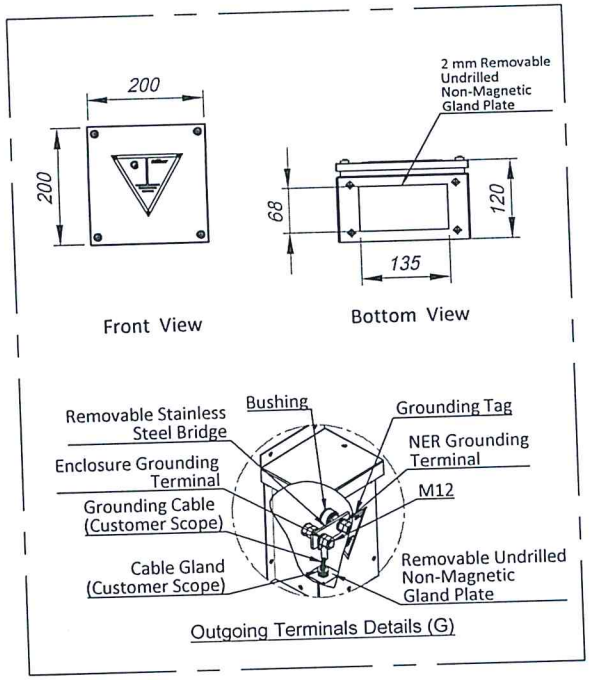
Title (Başlık): TECHNICAL DRAWING

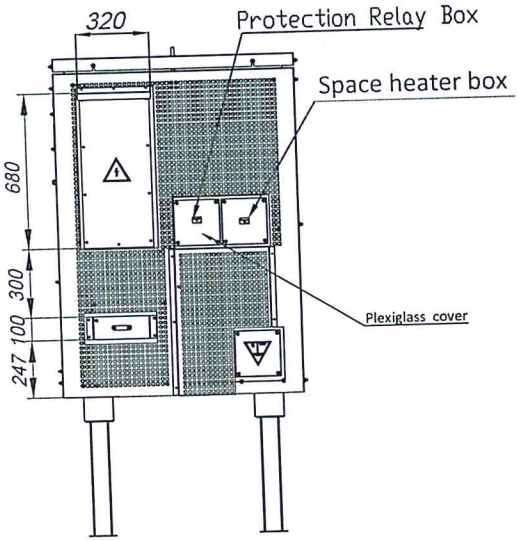
Drawing Nr (Çizim No): NTD.M.BA.2A.10T.01R.23P.20.0069

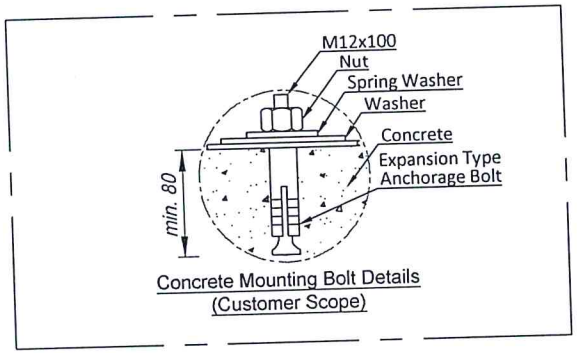
Tolerance (Tolerans): --
Measuring Unit (Ölçü Birimi): m
Sheet (Sayfa): 1
Revision (Revizyon): 0

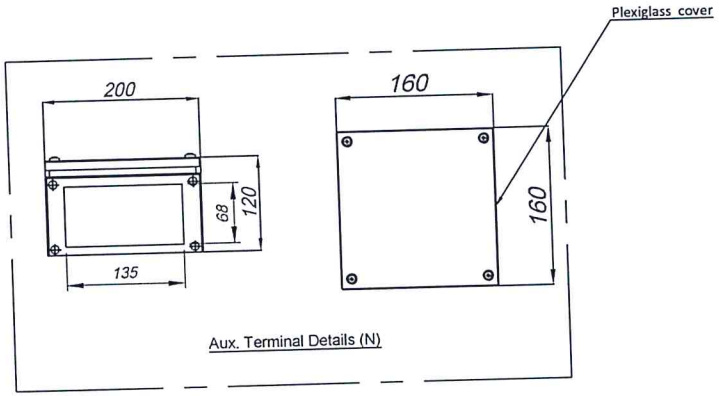
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Product (Ürün): 6,6 /√3 kV 19 Ohm 200 A 10 Sec. NEUTRAL EARTHING RESISTOR

Title (Başlık): TECHNICAL DRAWING

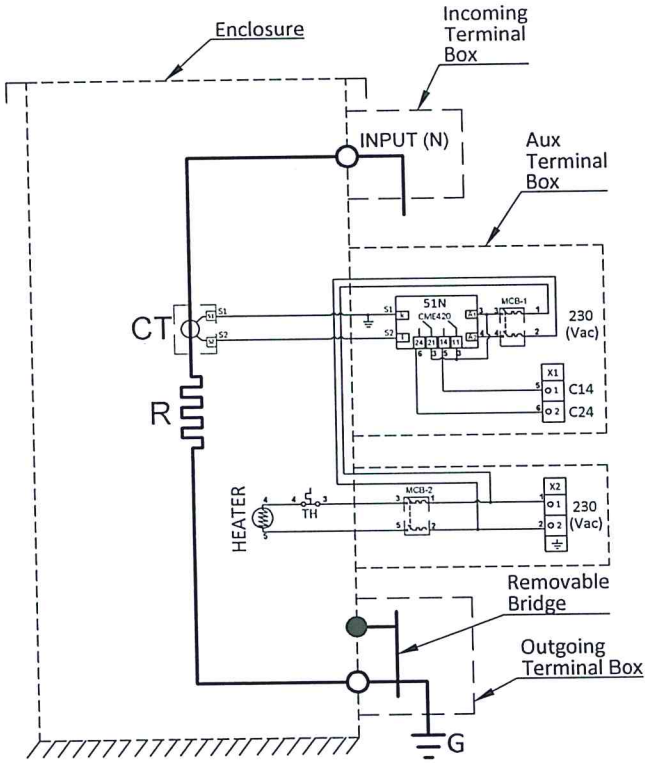
Drawing Nr (Çizim No): NTD.M.BA.2A.10T.01R.23P.20.0069

Tolerance (Tolerans)

Measuring Unit (Ölçü Birimi)

Sheet (Sayfa)

Revision (Revizyon)




| CME-420 Setting Values | | |
|---|---|---|
| | Duty Cycle | Resistor Status |
| C14 | 100 A 4 sec. | Resistor Online |
| C24 | 300 A 0,1 sec. | Resistor Short Circuit |

| | |
|---|---|
| Resistor (R) | : 19 Ohm 200 A 10 sec. |
| Current Transformer (CT) | : 200 / 1 A, 5P20, 15 VA, 1 pc. |
| Over Current Relay (51N) | : CME-420, 1 pc. |
| Miniature Circuit Breaker (MCB) | : 2x2 A, 4,5 kA, C type, 2 pcs. |
| Heater(TH) | : 100 W 230 Vac, 1 pc. |

# Wiring Diagram

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| 01 | 16.03.2020 | A.Y. | M.B. | S.C. |
| 00 | 18.01.2020 | Y.O. | M.B. | S.C. |

Product (Ürün): 6,6 /√3 kV 19 Ohm 200 A 10 Sec. NEUTRAL EARTHING RESISTOR

Title (Başlık): TECHNICAL DRAWING

Drawing Nr (Çizim No): NTD.M.BA.2A.10T.01R.23P.20.0069

Tolerance (Tolerans): -

Measuring Unit (Ölçü Birimi): r

Sheet (Sayfa): 3

Revision (Revizyon): 0

1 mm Stainless Steel Name Plate

190

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Made in TURKEY

# NEUTRAL EARTHING RESISTOR

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6,6/√3 ( 50 hz) | kV | 19 | Ω | 200 | A | 10 | Sec. |

| | | | |
|---|---|---|---|
| DUTY CYCLE | 3 time(s) per hour | TYPE | NTD.M.BA |
| CT(s) RATIO | 200/1 A | WEIGHT | * kgs |
| VT(s) RATIO | kV | STANDARD | IEEE 32 |
| B.I.L. | 7,2 / 20 / 60 kV | SERIAL NO | ** |
| PROTECTION DEGREE | IP 23 | PRODUCTION YEAR | 2020 |

Temperature Cofficient: 0,000915 @ 25 °C

Heater: 100 W, 230 Vac

120

98

168

4 x Ø4

* Exact weight will be specified after production

** Serial numbers: 75280620 - 75290620 - 75300620 - 75310620
75320620 - 75330620 - 75340620 - 75350620 - 75360620 - 75370620
75380620 - 75390620 - 75400620 - 75410620

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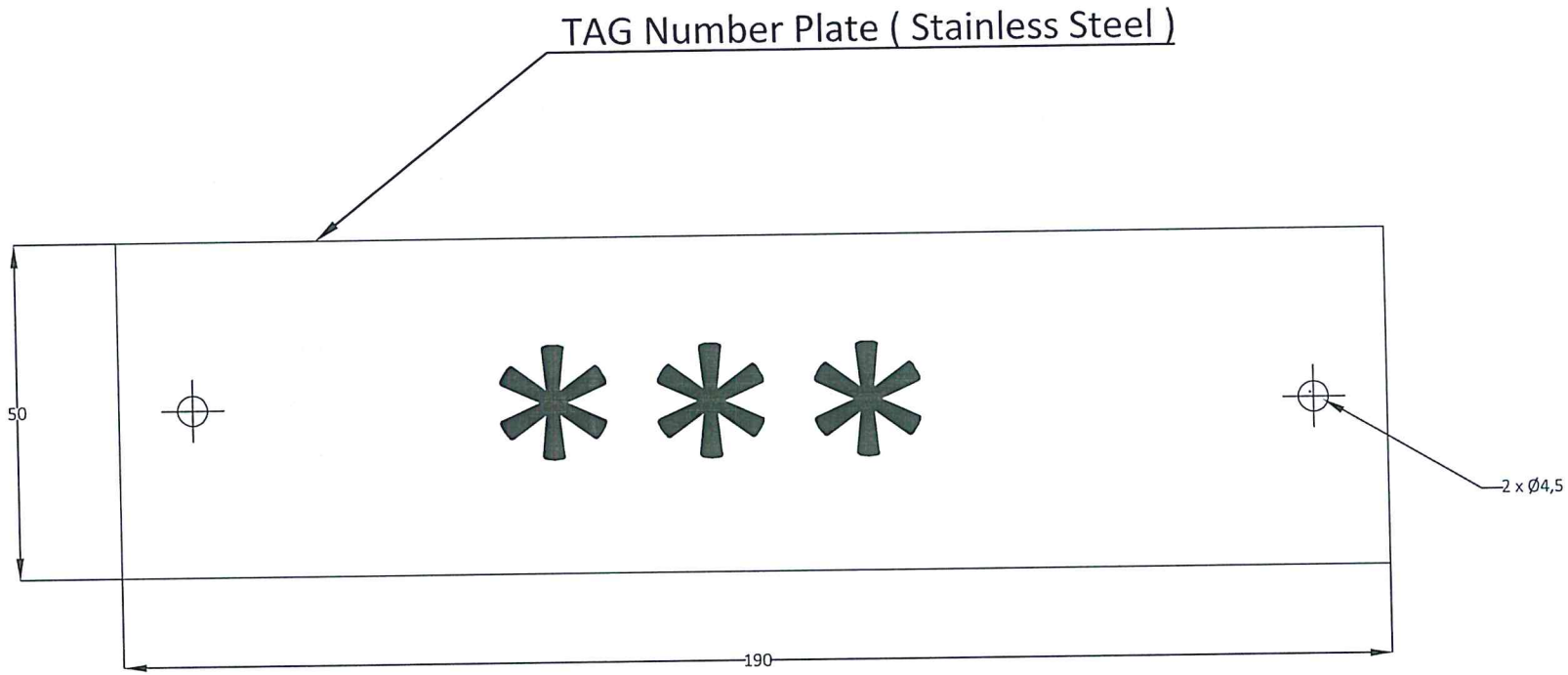
| 00 | 18.01.2020 | Y.O. | M.B. | S.C. |

| | |
|---|---|
| Product (Ürün) | 6,6 /√3 kV 19 Ohm 200 A 10 Sec. NEUTRAL EARTHING RESISTOR |
| Title (Başlık) | TECHNICAL DRAWING |
| Drawing Nr (Çizim No) | NTD.M.BA.2A.10T.01R.23P.20.0069 |

Tolerance (Tolerans)
Measuring Unit (Ölçü Birimi)
Sheet (Sayfa)
Revision (Revizyon)




TAG NUMBERS: 010-SUB-NER-1A, 010-SUB-NER-1B, 020-SUB-NER-1A, 020-SUB-NER-1B, 021-SUB-NER-1A, 021-SUB-NER-1B, 022-SUB-NER-1A, 022-SUB-NER-1B, 030-SUB-NER-1A, 030-SUB-NER-1B, 031-SUB-NER-1A, 031-SUB-NER-1B, 070-SUB-NER-1A, 070-SUB-NER-1B

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Title (Başlık): TECHNICAL DRAWING

Drawing Nr (Çizim No): NTD.M.BA.2A.10T.01R.23P.20.0069

Tolerance (Tolerans): -
Measuring Unit (Ölçü Birimi): -
Sheet (Sayfa): -
Revision (Revizyon): -

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|---|---|
| SUPPLIER'S NAME : | Schneider Electric Egypt |
| PURCHASE ORDER No : | 01251-100-510-54-38 |
| DOCUMENT TITLE : | Power Transformer 11/6.6kV - 8MVA GA DRawing (Typical) |
| TOTAL No OF PAGES : | Cover page + 03 |
| SUPLLIER'S ORDER No : | |

| SUPPLIER'S OWN DOCUMENT No | SUPPLIER'S REVISION | DATE | SUPPLIER APPROVAL SIGNATURE |
|---|---|---|---|
| | 00 | 21/05/2020 | Mahmoud Reda |
| | 01 | 18/06/2020 | Mahmoud Reda |
| | 02 | 05/08 /2020 | Mahmoud Reda |
| | | | |
| | | | |

## SUPPLIER DOCUMENT REVIEW

PERMISSION TO PROCEED DOES NOT CONSTITUTE ACCEPTANCE OR APPROVAL OF DESIGN DETAILS, CALCULATIONS, ANALYSIS, TEST METHODS OR MATERIALS DEVELOPED OR SELECTED BY SUPPLIER FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.

- ✓ 1. WORK MAY PROCEED.
- ○ 2. REVISE AND RESUBMIT IN ACCORDANCE WITH COMMENTS, WORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED.
- ○ 3. REVISE AND RESUBMIT, (MAJOR COMMENTS) WORK MAY NOT PROCEED.
- ○ 4. REJECTED, (REASON TO BE SPECIFIED ON THE DOCUMENT).
- ○ 5. HOLD FOR A SPECIFIC REASON ( TO BE SPECIFIED ON THE DOCUMENT).

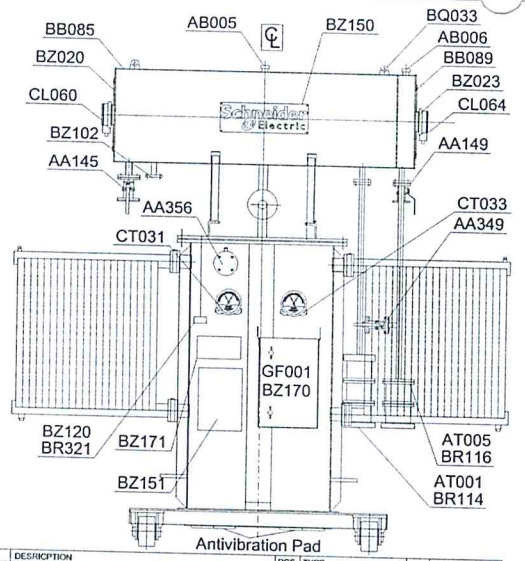
NAME: Shehab Awad

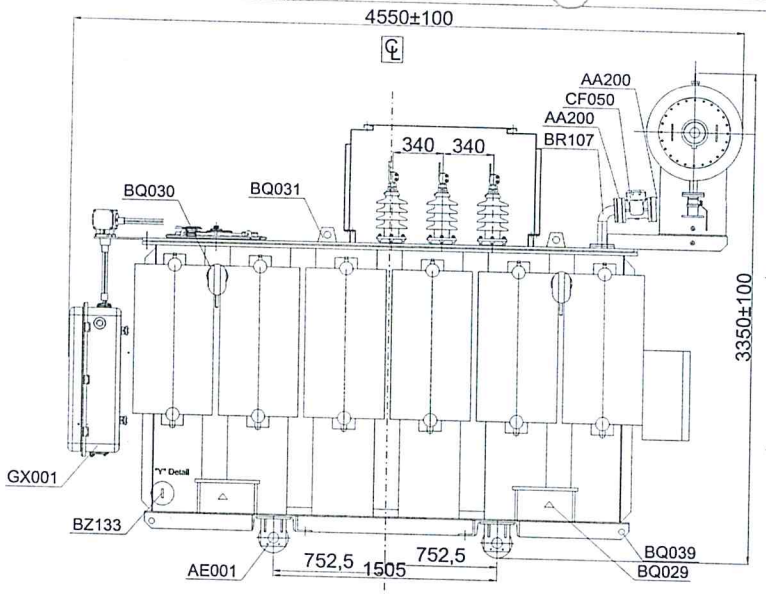
SIGNATURE: DATE : 16/08/2020

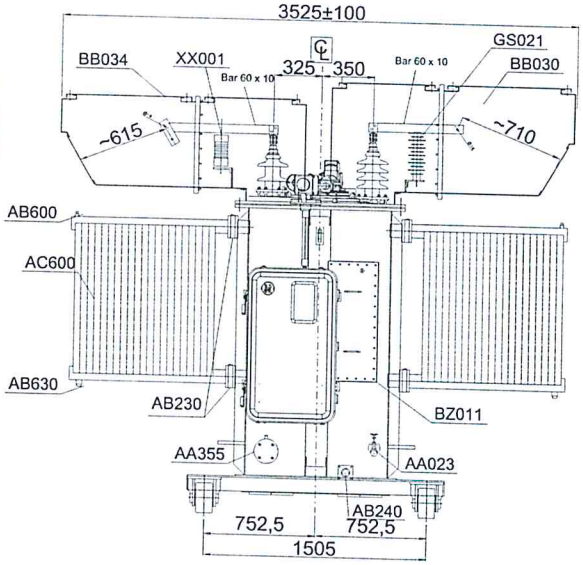
| | |
|---|---|
| PROJECT TITLE : | EGPC - Crude Oil Tank Farms (Main Transformer) |
| ENPPI PROJECT NUMBER : | 01251-100 |
| PACKAGE DESCRIPTION : | Power Transformers |
| EQUIPMENT TAG : | 030-SUB-PTR-1A/B & 031-SUB-PTR-1A/B |
| CODE IDENTIFIER : | D99 |

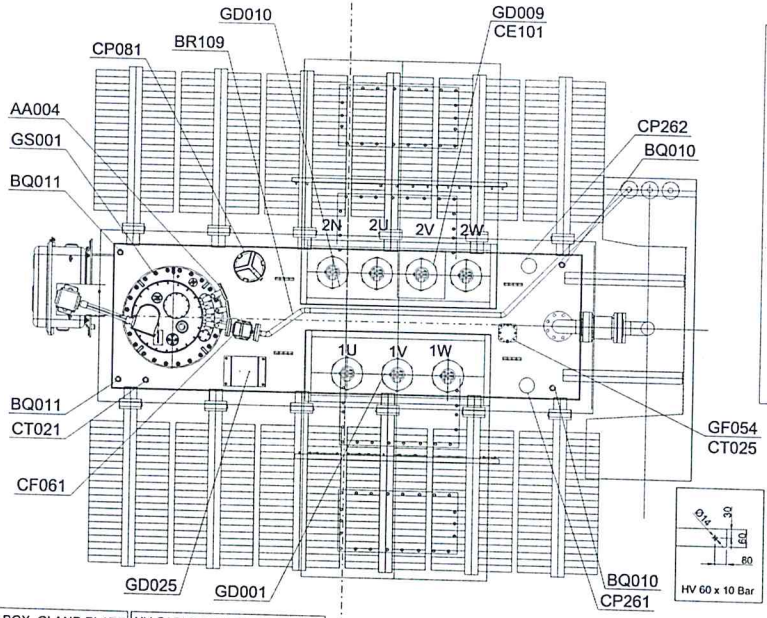
| DOCUMENT NUMBER | REV |
|---|---|
| 01251-100-S38-D99-0003 | 2 |

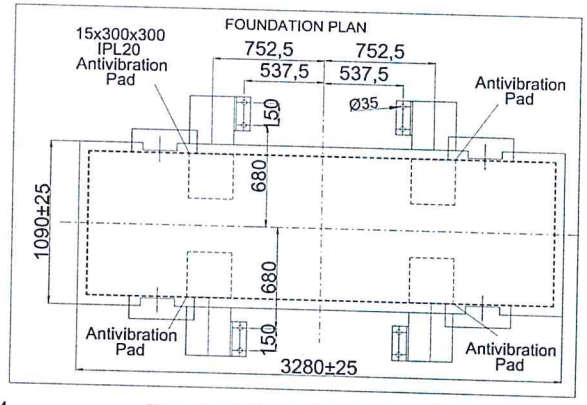
10000-Z-000-PMI-FRM-0033 (11/14)



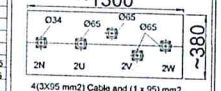



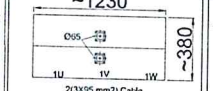

| POS | DESRICPTION | PCS | TYPE | | DRAWING NO |
|---|---|---|---|---|---|
| AA004 | OIL DRAIN VALVE | 1 | 1/2" | | E2060033 |
| AA023 | OIL SAMPLING VALVE - BOTTOM | 1 | DN15 | | R292505 |
| AA145 | VALVE FOR DRAINING CONSERVATOR OF TANK | 1 | DN40 | | E2080764 |
| AA149 | VALVE FOR DRAINING CONSERVATOR OF O.L.T.C. | 1 | DN25 | | E2080764 |
| AA200 | VALVE BETWEEN TANK AND CONSERVATOR | 2 | DN50 | | 2060682 |
| AA349 | PRESSURE-EQUALISING VALVE TANK-O.L.T.C. | 1 | DN25 | | E2080764 |
| AA355 | VALVE FOR OIL TREATMENT (OIL-OUTLET) -BOTTOM | 1 | DN50 | | E2080764 |
| AA356 | VALVE FOR OIL TREATMENT (OIL-INLET) -TOP | 1 | DN50 | | E2080764 |
| AB005 | AIR VENT ON CONSERVATOR OF MAINTANK | 1 | | | R293260 |
| AB006 | AIR VENT ON CONSERVATOR OF O.L.T.C | 1 | | | R293260 |
| AB230 | BUTTERFLY VALVE FOR RADIATOR | 24 | | | E4202616 |
| AB240 | RESIDUAL OIL DRAIN PLUG FOR MAINTANK | 1 | M52x2 | | R294062 |
| AB600 | AIR VENT PLUG ON RADIATOR | 12 | 6 | | R293169 |
| AB630 | DRAIN PLUG ON RADIATOR | 12 | 12 A | | R293169 |
| AC600 | RADIATOR | 12 | | | |
| AE001 | BIDIRECTIONAL ROLLER | 4 | 10 TN FLAT | | E2090140 |
| AT001 | DEHYRATING BREATHER FOR CONSERVATOR OF TANK | 1 | L2 | | E2080718 - 02 |
| AT005 | DEHYRATING BREATHER FOR CONSERVATOR OF O.L.T.C | 1 | L1 | | E2080718 - 01 |
| BB030 | CABLE BOX HV | 1 | IP55 | | |
| BB034 | CABLE BOX LV | 1 | IP55 | | |
| BB085 | CONSERVATOR FOR MAINTANK | 1 | | | |
| BB089 | CONSERVATOR FOR O.L.T.C. | 1 | | | |
| BQ010 | THERMOMETER POCKET | 2 | | | E2060640 |
| BQ011 | SPARE THERMOMETER POCKET | 2 | | | E2060640 |
| BQ029 | JACKING PAD | 4 | | | |
| BQ030 | LIFTING LUG FOR ENTIRE UNIT | 4 | | | |
| BQ031 | LIFTING LUGS FOR CORE AND COIL ASSEMBLY | 4 | | | |
| BQ033 | LIFTINGS LUGS FOR CONSERVATOR | 2 | | | |
| BQ039 | PULLING EYES | - | Ø50 | | |
| BR107 | PIPE BETWEEN MAINTANK AND CONSERVATOR | 1 | DN80 | | |
| BR109 | PIPE FOR O.L.T.C. AND CONSERVATOR | 1 | | | |
| BR114 | PIPE FOR DEHYDRATING BREATHER OF MAINTANK | 1 | | | |
| BR116 | PIPE FOR DEHYDRATING BREATHER OF O.L.T.C. | 1 | | | |
| BR321 | GAS COLLECTION PIPE FOR GAS SAMPLING | 1 | | | |
| BZ011 | HANDHOLE ON THE TANK | | | | |
| BZ020 | HANDHOLE FOR CLEANING CONSERVATOR OF TANK | 1 | | | |
| BZ023 | HANDHOLE FOR CLEANING CONSERVATOR OF O.L.T.C. | 1 | | | |
| BZ102 | EVACUATING CONNECTION ON CONSERVATOR | 1 | | | |
| BZ120 | GAS SAMPLING DEVICE FOR BUCHHOLZ RELAY | 1 | | | |
| BZ133 | TERMINAL FOR EARTHING OF TANK | 2 | DIAGONAL Ø12 | | |
| BZ150 | MANUFACTURE'S NAME PLATE | 1 | | | |
| BZ151 | RATING PLATE | 1 | | | CRP100D283175 |
| BZ170 | TRANSFORMER CONTROL PANEL | 1 | | | MBX100D283175 |
| BZ171 | NAME PLATE | 1 | | | CTP100D283175 |
| CF050 | BUCHHOLZ RELAY FOR TANK | 1 | DR80 | 2K | 411465 |
| CE101 | CURRENT TRANSFORMER | 1 | 10 VA,875/2A,CL,3 | | |
| CF061 | OIL FLOW RELAY FOR O.L.T.C | 1 | QJKG-25 | 1K | OLT100D283175 |
| CL060 | OIL LEVEL INDICATOR FOR TANK | 1 | KYSA - B2 | 2K | 423060 |
| CL064 | OIL LEVEL INDICATOR FOR O.L.T.C. | 1 | KYSA - B2 | 2K | 423060 |
| CP081 | PRESSURE RELIEF DEVICE FOR TANK | 1 | T80 | 2K | 4208691 |
| CP261 | PRESSURE RELAY FOR MAINTANK | 1 | | | 4206187 |
| CP262 | MANOMETER FOR MAINTANK | 1 | | | 4208118 |
| CT021 | THERMOSTAT FOR MAINTANK OIL | 1 | | | 4210893 |
| CT025 | RESISTANCE THERMOMETER FOR CORE | 3 | | | 4201923 |
| CT031 | DIAL TYPE THERMOMETER FOR TANK OIL TEMPERATURE | 1 | MT-ST 160SK | 2K | 4219697 |
| CT033 | DIAL TYPE THERMOMETER FOR TANK WINDING TEMPERATURE | 1 | MT-ST 160W | | 4219696 |
| GD001 | BUSHING FOR H.V. | 3 | EN-24-1250 A / P3 | | E2041269-02 |
| GD009 | BUSHING FOR L.V. | 3 | EN-12-1250 A / P4 | | E2041269-01 |
| GD010 | BUSHING FOR L.V. NEUTRAL | 1 | EN-12-1250 A / P4 | | E2041269-01 |
| GD025 | CORE EARTHING BUSHING | 1 | DT1/250 | | E2040095 |
| GF001 | TERMINAL BOX | 1 | IP55 | | MBX100D283175 |
| GS001 | ON-LOAD TAPCHANGER | 1 | CV III 350D-40,5-12 23 1G | | OLT100D283175 |
| GS021 | SURGE ARRESTER | 3 | | | TBA |
| GX001 | MOTOR DRIVE UNIT | 1 | CMA-7 | | OLT100D283175 |
| XX001 | SUPPORT INSULATOR | 4 | | | 2040939 |

**LV CABLE BOX GLAND PLATE**



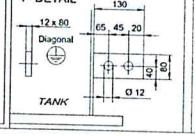

4(3X95 mm2) Cable and (1 x 95) mm2
Cable gland plate is 3 mm drilled.
Cable glands are not in scope of supply.

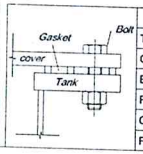
**HV CABLE BOX GLAND PLATE**




2(3X95 mm2) Cable
Cable gland plate is 3 mm drilled.
Cable glands are not in scope of supply.

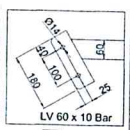
**"Y" DETAIL**










Center line

| Description | * | * | |
|---|---|---|---|
| Tank | ST-37 | 6,0 | mm |
| Cover | ST-37 | 16,0 | mm |
| Base | ST-37 | 10,0 | mm |
| Radiator | ST-37 | 1,0 | mm |
| Conservator | ST-37 | 4,0 | mm |
| Rating Plate | CR-NI | 1,0 | mm |

| REV | SCHNEIDER REVISION NO | DATE | AUTHOR | CHECK | APPROVAL | MODIFICATIONS |
|---|---|---|---|---|---|---|
| 004 | ADH / 0003 | 29.07.2020 | A.ANILIR | Y.KAYNAR | | CT025 place is revised |
| 003 | ADH / 0002 | 30.06.2020 | A.ANILIR | Y.KAYNAR | | 3. issue |
| 002 | ADH / 0001 | 16.06.2020 | A.ANILIR | Y.KAYNAR | | 2. issue |
| 001 | ADH / 0000 | 21.05.2020 | A.ANILIR | Y.KAYNAR | | 1. issue |

Dimensions without tolerances according to ISO 13920 class D coarse | Surface texture ISO 1302 | All Dimensions in millimetres unless otherwise stated | IF IN DOUBT PLEASE ASK

| | | | | | |
|---|---|---|---|---|---|
| Rated Power | 8000/ (10000) | kVA | Cooling method | | ONAN |
| Voltage | 11000 / 6600 | A | Total weight | : | 20500 kg |
| Current ONAN | HV 419,9 / 524,8 | | Shipping weight with oil | : | 15500 kg |
| | LV 699,8 / 874,7 | | Untanking weight | : | 10400 kg |
| Angular displacement | Dyn11 | | Weight of oil | : | 4400 kg |
| Frequency | 50 | Hz | Oil Type | | APAR 60U |
| | | | Colour | : | RAL7033 N2125 0050 - C5 - H |

Schneider Electric

Approved by
Date 21.05.2020
Group ADHE
Designed by A.ANILIR
Checked by Y.KAYNAR

Customer : S.E EGYPT
Solid Name : M283175-176-177-178
Description: Dimensional Drawing
Code No. -
Drawing No: DIM100D283175
Sheet No. 1 Sheet 1
Scale -
Replaces drawing no.
Replaced by drawing no.
A.ds040

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( ** ) Empty fields in the rating plate will be engraved after tests.

Plate Dimensions :1 x 297 x 420 mm.

Plate Material :CR-NI (SS304)

| REV | REVISION NO | DATE | AUTHOR | CHECK | APPROVAL | MODIFICATIONS |
|---|---|---|---|---|---|---|
| 003 | ADH-7471 | 20.07.2020 | A.ANILIR | B.OZTURK | YILMAZ | |
| 002 | ADH-0002 | 03.07.2020 | A.ANILIR | B.OZTURK | YILMAZ | |
| 001 | ADH-0001 | 16.06.2020 | A.ANILIR | B.OZTURK | YILMAZ | |

# Schneider Electric

TOSB Organize Sanayi Bölgesi 1.Cadde No : 6 Şekerpınar - Çayırova - Kocaeli / TÜRKİYE

| | | | |
|---|---|---|---|
| TRANSFORMER | TYPE MINERA MP | YEAR OF MANUFACT. | SERIAL NO. |
| RATED POWER | 8000 / (10000) kVA | FREQUENCY 50 Hz | COOLING METHOD ONAN / (ONAF) |
| CONNECTION GROUP | Dyn11 | NUMBER OF PHASES 3 | PRODUCTION STANDARD IEC 60076-1 |

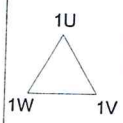
| RATED VOLTAGE (V) | | RATED CURRENT (A) | |
|---|---|---|---|
| HV | LV | HV | LV |
| 11000 | 6600 | 419,9 / (529,9) | 699,8 / (874,8) |

| | |
|---|---|
| MAXIMUM AMBIENT TEMPERATURE | 50 °C |
| WINDING TEMPERATURE RISE | 55 K |
| OIL TEMPERATURE RISE | 45 K |

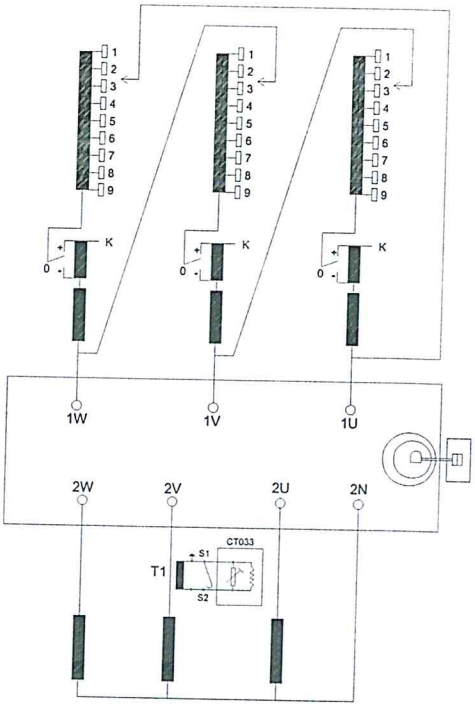
| BASE (kVA) | SHORT CIRCUIT IMPEDANCE | | |
|---|---|---|---|
| 8000 | POS.1 | • | % |
| | POS.9B | • | % |
| | POS.17 | • | % |

| | |
|---|---|
| INSULATION LEVEL | HV: LI 75 kV AC 28 kV / LV: LI 60 kV AC 20 kV |
| TOTAL MASS | 20500 kg |
| UNTANKING MASS | 10400 kg |
| TRANSPORTATION MASS | 15500 kg |
| MASS OF INSULATING LIQUID | 4400 kg |
| TYPE OF INSULATING LIQUID | APAR 60 U (IEC60296) |
| TANK,RADIATORS ARE VACUUM PROOF. | |
| TRANSFORMER IP CLASS : IP55 | TANK IP CLASS : IP66 |

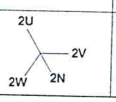
HIGH VOLTAGE (TAPPING RATE : +- 10%)

| CONNECTION DIAGRAM | VOLTAGE (V) | CURRENT (A) ONAN | CURRENT (A) (ONAF) | TAP CHANGER SELECTOR | | POS. |
|---|---|---|---|---|---|---|
|  | 12100 | 381,7 | 477,1 | 1 | 0 + | 1 |
| | 11963 | 386,1 | 482,6 | 2 | | 2 |
| | 11825 | 390,6 | 488,2 | 3 | | 3 |
| | 11688 | 395,5 | 494,0 | 4 | | 4 |
| | 11550 | 399,9 | 499,9 | 5 | | 5 |
| | 11413 | 404,7 | 505,9 | 6 | | 6 |
| | 11275 | 409,6 | 512,1 | 7 | | 7 |
| | 11138 | 414,7 | 518,4 | 8 | | 8 |
| | 11000 | 419,9 | 524,9 | 9 | | 9A |
| | 11000 | 419,9 | 524,9 | K | | 9B |
| | 11000 | 419,9 | 524,9 | 1 | 0 - | 9C |
| | 10863 | 425,2 | 531,5 | 2 | | 10 |
| | 10725 | 430,7 | 538,3 | 3 | | 11 |
| | 10588 | 436,3 | 545,3 | 4 | | 12 |
| | 10450 | 442,0 | 552,3 | 5 | | 13 |
| | 10313 | 447,9 | 559,9 | 6 | | 14 |
| | 10175 | 453,9 | 567,4 | 7 | | 15 |
| | 10038 | 460,2 | 575,2 | 8 | | 16 |
| | 9900 | 466,5 | 583,2 | 9 | | 17 |






LOW VOLTAGE

| CONNECTION DIAGRAM | VOLTAGE (V) | CURRENT (A) |
|---|---|---|
|  | 6600 | 437,4 / (546,7) |



CURRENT TRANSFORMERS

| DEFINITION | BURDEN ( VA ) | RATIO ( A / A ) | CLASS |
|---|---|---|---|
| T1 | 10 | 875 / 2 | CL.3 |

CRP100D283175

Schneider Electric

Date 21.05.2020

Group ADH-E

Designed by A.ANILIR

Checked by B.OZTURK

Customer : S.E EGYPT

Serial Number : M283175-176-177-178

Description RATING PLATE

Code No. -

Drawing No CRP100D283175

Replaces drawing no.

Cancelled by drawing no.

Sh.No. 1 Sheet 1

Scale -/-

AutoCAD

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030-SUB-PTR-1A

CTP100D283175

031-SUB-PTR-1A

CTP100D283175

030-SUB-PTR-1B

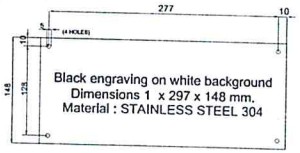
CTP100D283175

031-SUB-PTR-1B

CTP100D283175

| REV | REVISION NO | DATE | AUTHOR | CHECK | APPROVAL | MODIFICATIONS |
|---|---|---|---|---|---|---|
| 001 | ADH / 0001 | 16.06.2020 | ANILIR | KAYNAR | | First issue |

** PLATE D297 x 148 CR-NI MATERIAL T 0947




Black engraving on white background
Dimensions 1 x 297 x 148 mm.
Material : STAINLESS STEEL 304

| | | | |
|---|---|---|---|
| Dimensions without tolerances according to ISO 13920 class D coarse | Surface texture ISO 1302 | All Dimensions in millimetres unless otherwise stated | IF IN DOUBT PLEASE ASK |

Schneider Electric

| | |
|---|---|
| Dimensions without tolerances ISO 2768 coarse | Approved by: ACAR |
| Date | 16.06.2020 |
| Group | ADH-E |
| Designed by | ANILIR |
| Checked by | KAYNAR |

Customer : CRUDE OIL

Serial Number : M283175-176-177-178

Description: NAME PLATE

Code No.: -

Drawing No: CTP100D283175

Sh.No.: 1 | Sheet: 1

Scale: -/-

Replaces drawing no. | Cancelled by drawing no

AutoCAD

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.03- Motor Datasheets

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.04- Electrical Cables Schedule

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.05- Electrical Cables Laying Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.06- Electrical Cables Testing Certificates

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

# CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | DOUCUMENT No | DISPLINE | SHEET NO |
|---|---|---|---|---|
| PTJ-ELE-RFI- | | ITR-EL-0006A | ELECTRICAL | |

| INSTRUMENT TYPE: | SERIAL: | SERVICE VOLTAGE: | TEST VOLTAGE: | AREA / PACKAGE: |
|---|---|---|---|---|
| HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000 | 17015900385 | 400 | 1000 | SUBSTATION |

| NO | Item/Tag NO. | CABLE SIZE | Continuity Test | PHASE TO PHASE | | | PHASE TO NUETRAL"M.Ohm" | | | PHASES & NUETRAL TO ARMOR "M.Ohm" | | | | RESULT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BR-BK | BR-GR | BK-GR | BR-B | BK-B | GR-B | BR-ARM | BK-ARM | GR-ARM | B-ARM | Pass | FAIL |
| 17 | P-030-SUB-LPDP-1 | 3.5x120 | ✓ | ol | ol | ol | ol | | | | | | | ✓ | |
| 18 | P-030-SUB-ASP-1 | 3.5x120 | ✓ | ol | ol | ol | ol | | | | | | | ✓ | |
| 19 | P-030-EPM1-UPDP-1 | 3.5x50 | ✓ | ol | ol | ol | ol | | | | | | | ✓ | |
| 20 | P1-030-SUB-ACUPS-1 | 3x10 | ✓ | o | | | ol | | | | | | | ✓ | |
| 21 | P-030-SUB-IRP-1 | 3x10 | ✓ | | | | ol | | | | | | | ✓ | |
| 22 | D-030-SUB-LVSWG-1A | 3x10 | ✓ | | | | ol | | | | | | | ✓ | |
| 23 | D-030-SUB-LVSWG-1B | 3x10 | ✓ | | | | ol | | | | | | | ✓ | |
| 24 | D-030-SUB-IRP-1 | 3x10 | ✓ | | | | ol | | | | | | | ✓ | |
| 25 | P1-030-SUB-LVSWG-1A | 3x10 | ✓ | | | | ol | | | | | | | ✓ | |
| 26 | P1-030-SUB-LVSWG-1B | 3x10 | ✓ | | | | ol | | | | | | | ✓ | |
| 27 | C1-030-SUB-ACUPS-1 | 3x2.5 | ✓ | | | | ol | | | | | | | ✓ | |
| 28 | C2-030-SUB-ACUPS-1 | 3x2.5 | ✓ | | | | ol | | | | | | | ✓ | |
| 29 | C1-030-SUB-DCUPS-1 | 3x2.5 | ✓ | | | | ol | | | | | | | ✓ | |
| 30 | C2-030-SUB-DCUPS-1 | 3x2.5 | ✓ | | | | ol | | | | | | | ✓ | |
| 31 | P-030-SUB-AVR-1A | 3x4 | ✓ | | | | ol | | | | | | | ✓ | |
| 32 | P-030-SUB-AVR-1B | 3x4 | ✓ | | | | ol | | | | | | | ✓ | |

**Remarks :-**

**Referance :-**

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

# CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | DOUCUMENT No. | DISPLINE | SHEET NO |
|---|---|---|---|---|
| PTJ-ELE-RFI- 208 | 02/06/2021 | ITR-EL-0006B | ELEC | |

| INSTRUMENT TYPE: | SERIAL: | SERVICE VOLTAGE: | TEST VOLTAGE: | AREA / PACKAGE: |
|---|---|---|---|---|
| HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000 | 17015900385 | 24 | 500 | |

| NO | Item/Tag NO. | CABLE SIZE | Continuity Test | pair conductors | conductors to armor | Shield to Shield | All Conductors-GND | Overall Shield -GND | Armor -GND | RESULT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Pass | FAIL |
| 1 | C1-030-SUB-AVR-1A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 2 | C2-030-SUB-PTR-1A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 3 | C1-030-SUB-AVR-1B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 4 | C2-030-SUB-PTR-1B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 5 | C1-030-SUB-HVSWG-6.6A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 6 | C2-030-SUB-HVSWG-6.6A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 7 | C3-030-SUB-HVSWG-6.6A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 8 | C4-030-SUB-HVSWG-6.6A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 9 | C5-030-SUB-HVSWG-6.6A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 10 | C1-030-SUB-HVSWG-6.6B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 11 | C2-030-SUB-HVSWG-6.6B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 12 | C3-030-SUB-HVSWG-6.6B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |

**Remarks :-**

**Referance**

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | Ahmed Hassan | | |
| SIGNATURE | | | |
| DATE | 6/6/2021 | | |

® Islam Sherif

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

# CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | DOUCUMENT No. | DISPLINE | SHEET NO |
|---|---|---|---|---|
| PTJ-ELE-RFI- 208 | 02/06/2021 | ITR-EL-0006A | ELECTRICAL | |

| INSTRUMENT TYPE: | SERIAL: | SERVICE VOLTAGE: | TEST VOLTAGE: | AREA / PACKAGE: |
|---|---|---|---|---|
| HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000 | 17015900385 | 400 | 1000 | SUBSTATION |

| NO | Item/Tag NO. | CABLE SIZE | Continuity Test | PHASE TO PHASE | | | PHASE TO NUETRAL"M.Ohm" | | | PHASES & NUETRAL TO ARMOR "M.Ohm" | | | | RESULT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BR-BK | BR-GR | BK-GR | BR-B | BK-B | GR-B | BR-ARM | BK-ARM | GR-ARM | B-ARM | Pass | FAIL |
| 1 | P1-030-SUB-TR-1A | 3x10 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 2 | P1-030-SUB-TR-1B | 3x10 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 3 | P1-030-LPDP-CR-1 | 3x16 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 4 | P1-030-LPDP-CR-2 | 3x16 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 5 | P1-030-LPDP-CR-3 | 3x16 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 6 | P1-030-SUB-NER-1A | 3x4 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 7 | P1-030-SUB-NER-1B | 3x4 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 8 | P1-030-SUB-PTR-1A | 4x10 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 9 | P2-030-SUB-PTR-1A | 4x10 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 10 | P1-030-SUB-PTR-1B | 4x10 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 11 | P2-030-SUB-PTR-1B | 4x10 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | ✓ | |
| 12 | P1-030-SUB-HVSWG-11 | 4x4 | ✓ | O.L | O.L | O.L | — | — | — | — | — | — | — | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |

Remarks :-

Referance :-

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | Ahmed Hassan | | |
| SIGNATURE | | | |
| DATE | 6/6/2021 | | |

® Islam Sherif

| Enppi | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

INSPECTION AND TEST REPORT FOR

# CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | DOUCUMENT No. | DISPLINE | SHEET NO |
|---|---|---|---|---|
| RFI-~~111~~ 206 | | ITR-EL-0006A | ELECTRICAL | |

| INSTRUMENT TYPE: | SERIAL: | SERVICE VOLTAGE: | TEST VOLTAGE: | AREA / PACKAGE: |
|---|---|---|---|---|
| | | ~~220 kV~~ 66 kV | 5 kv | |

| NO | Item/Tag NO. | CABLE SIZE | Continuity Test | PHASE TO PHASE "M.Ohm" | | | PHASE TO NUETRAL"M.Ohm" | | | PHASES & NUETRAL TO ARMOR "M.Ohm" | | | | RESULT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BR-BK | BR-GR | BK-GR | BR-B | BK-B | GR-B | BR-ARM | BK-ARM | GR-ARM | B-ARM | Pass | FAIL |
| 1 | P/1-030-SUB-PTR-1A | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 2 | P/2-030-SUB-PTR-1A | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 3 | P/3-030-SUB-PTR-1A | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 4 | G1-030-SUB-NER-1A | 1x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 5 | P/1-030-SUB-PTR-1B | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 6 | P/2-030-SUB-PTR-1B | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 7 | P/3-030-SUB-PTR-1B | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 8 | G1-030-SUB-NER-1B | 1x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 9 | P/1-030-SUB-HVSWG-6.6A | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 10 | P/2-030-SUB-HVSWG-6.6A | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 11 | P/3-030-SUB-HVSWG-6.6A | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 12 | P/4-030-SUB-HVSWG-6.6A | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 13 | P/1-030-SUB-HVSWG-6.6B | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 14 | P/2-030-SUB-HVSWG-6.6B | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 15 | P/3-030-SUB-HVSWG-6.6B | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 16 | P/4-030-SUB-HVSWG-6.6B | 3x95 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 17 | P-030-SUB-TR-1A | 3x70 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 18 | P-030-SUB-TR-1B | 3x70 | ✓ | | | | ∞ | | | | | | | ✓ | |
| 19 | P-030-EPM2-TR-1 | 3x70 | ✓ | | | | ∞ | | | | | | | ✓ | |

**Remarks :-**

**Referance :-**

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | Islam Sherif | |
| SIGNATURE | | | M. Omar |
| DATE | | | |

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

# CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | DOUCUMENT No. | DISPLINE | SHEET NO |
|---|---|---|---|---|
| PTJ-ELE-RFI- 208 | 02/06/2021 | ITR-EL-0006B | ELEC | |

| INSTRUMENT TYPE: | SERIAL: | SERVICE VOLTAGE: | TEST VOLTAGE: | AREA / PACKAGE: |
|---|---|---|---|---|
| HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000 | 17015900385 | 24 | 500 | |

| NO | Item/Tag NO. | CABLE SIZE | Continuity Test | pair conductors | conductors to armor | Shield to Shield | All Conductors-GND | Overall Shield -GND | Armor -GND | RESULT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Pass | FAIL |
| 13 | C4-030-SUB-HVSWG-6.6B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 14 | C5-030-SUB-HVSWG-6.6B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 15 | C1-030-SUB-LVSWG-1A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 16 | C1-030-SUB-LVSWG-1B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 17 | C1-030-PM-04A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 18 | C1-030-PM-04B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 19 | C1-030-PM-05A | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 20 | C1-030-PM-05B | 10x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 21 | C3-030-SUB-AVR-1A | 1x3x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 22 | C3-030-SUB-AVR-1B | 1x3x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 23 | C6-030-SUB-HVSWG-6.6A | 3x2.5 | ✓ | o.L | — | — | o.L | — | — | ✓ | |
| 24 | C6-030-SUB-HVSWG-6.6B | 3x2.5 | | o.L | — | — | o.L | — | — | ✓ | |

**Remarks :-**

**Referance**

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | Ahmed Hassan | | |
| SIGNATURE | | | |
| DATE | 6/6/2021 | | |

® Islam Sherif

Enppi PETROJET

# EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

## HI POT INSULATION TEST

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| RFI-206 | | ITR-EL-0008 | | 1 OF 1 |

| Item/Tag NO. | | | | | |
|---|---|---|---|---|---|
| Type :- | | Core: | | Size: | |

| NO. | Description of check | RESUNT ACCEPT | REJECT | N/A. |
|---|---|---|---|---|
| 1 | No damage of cable has found and maintain insulation resistance | ✓ | | |
| 2 | Correct cable type/size/ installed as per approved drawing | ✓ | | |
| 3 | Calibration test certificate of testing equipment to be checked. | ✓ | | |

Continuity Test : ☑ ACCEPT ☐ REJECT ☐ N/A.

Test Equipment List

| INSTRUMENT TYPE: | SERIAL: | SERVICE VOLTAGE: | TEST VOLTAGE: | |
|---|---|---|---|---|
| | | | | |

Insulation Resistance Test MΩ

| PHASE TO PHASE | | | PHASES TO ARMOR | | |
|---|---|---|---|---|---|
| BR-BK | BR-GR | BR-GR | BR-ARM | BK-ARM | GR-ARM |
| ol | ol | ol | ol | ol | ol |

Hi-Pot test

Phase BR Test Voltage (..1.4.. kV)

| Phase | TEST VOLTAGE | TIME | CURRENT | |
|---|---|---|---|---|
| ARM,BK,GR_BR | | 15 Min | 385 MA | |

Phase BK Test Voltage (..1.4.. kV)

| Phase | TEST VOLTAGE | TIME | CURRENT | |
|---|---|---|---|---|
| ARM,BR,GR_BK | | 15 Min | 405 MA | |

Phase GR Test Voltage (..1.4.. kV)

| Phase | TEST VOLTAGE | TIME | CURRENT | |
|---|---|---|---|---|
| ARM,BR,BK_GR | | 15 Min | 310 MA | |

Insulation Resistance Test MΩ

| PHASE TO PHASE | | | PHASES TO ARMOR | | |
|---|---|---|---|---|---|
| BR-BK | BR-GR | BR-GR | BR-ARM | BK-ARM | GR-ARM |
| | | | | | |

Remarks :

INSPECTION RESULTS: ☑ APPROVEI ☐ REJECT ☐ APPROVED W/ COMMENT

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | Islam Sherif | |
| SIGNATURE | | | M. omar |
| DATE | | | |

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.07- Electrical Cables Termination Certificates

| Enppi PETROJET | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030 :01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001
Revision No. : 00

# REQUEST FOR INSPECTION

ACTIVITY : LVSWG And Bus Duct Installation

NOTIFICATION NO. : PTJ-RFI-EL-105 DISCIPLINE : ELECTRICAL

DATE : : 2/18/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| | Power Transformer Installation | AGROUD MODULE 2 SUB BUILDING | 18-Feb-21 | | | | |
| 1 | 031-SUB-PTR-1A | | | | | | |
| 2 | 031-SUB-PTR-1B | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

As per Attached

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | Rasad | |
| SIGNATURE | | | |
| DATE | | | |

| Enppi PETROJET | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

INSPECTION AND TEST REPORT FOR

## POWER TRANSFORMER PRE INSTALLATION

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| | | ITR-EL-0016 | ELECTRICAL | |

| JOB DESCRIPTION | AREA DESCRIPTION |
|---|---|
| | |

| | | | |
|---|---|---|---|
| Transformer No. | | Serial No. | |
| System Voltage | | Rating | |

| NO. | INSPECTION | RESULT | | |
|---|---|---|---|---|
| | | ACCEPT | REJECT | N/A. |
| 1 | If any transportation damages are found, it shall be reported to the Transportation Company | | | |
| 2 | The transformer shall be lifted and carried by the lifting lugs | | | |
| 3 | During loading and/or unloading of the transformer by crane, swaying movements should be avoided. As knocks against walls or other objects may cause damage to the HV- windings or | | | |
| 4 | The rollers shall be fitted | | | |
| 5 | The transformer shall be pulled from the pulling eyes on the lower frame. It shall not be moved by pushing on to the coils in any case | | | |
| 6 | The off-loading has to be done carefully | | | |
| 7 | Dust which accumulates on transformer during transport or storage should be cleaned by using compressed air | | | |
| 8 | The storehouse shall be a covered place, which shall not be cooler than -25°C. Transformers in storage must be protected from the direct sunlight and condensation water | | | |
| 9 | Check Direction of Air Flow According to Drawing | | | |
| 10 | Check for Forced Ventilation (Fans controlled by Thermostat system) | | | |
| 11 | Check for Forced Ventilation (Fans Only) | | | |
| 12 | Check for Natural Ventilation (Door Openings, Ventilation Openings) as per below fig. | | | |

**REMARKS:**

**REFERENCE DOCUMENTS:**

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | | |
| SIGNATURE | | | |
| DATE | | | |

| Enppi PETROJET | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

INSPECTION AND TEST REPORT FOR

# POWER TRANSFORMER INSTALLATION

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| | | ITR-EL-0017 | ELECTRICAL | |

| JOB DESCRIPTION | AREA DESCRIPTION |
|---|---|
| | |

| | | | |
|---|---|---|---|
| Transformer No. | | Serial No. | |
| System Voltage | | Rating | |

| NO. | INSPECTION | RESULT | | |
|---|---|---|---|---|
| | | ACCEPT | REJECT | N/A. |
| 1 | The transformer room must be dry and clean, the flowing of the water must be prevented | | | |
| 2 | Adequate ventilation is to be provided for heat dissipation | | | |
| 3 | For indoor installation care must be taken to place transformers at a distance from the wall in keeping with insulation level mentioned in the rating plate as well as the requirements stipulated in standards | | | |
| 4 | The spacing of the HV cables should be according to standards | | | |
| 5 | If the LV/HV terminal is aluminum, The necessary precautions will be taken for the copper cable or copper bus bar connection | | | |
| 6 | The connection cables for transformer auxiliary shall be fixed rigidly to cable channels adequately Isolated from active parts as per the requirements of standards | | | |
| 7 | Check all the screws on HV coils and on LV connections, if necessary tighten according to the installation manual | | | |

REMARKS:

REFERENCE DOCUMENTS:

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | | |
| SIGNATURE | | | |
| DATE | | | |

| Enppi PETROJET | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

INSPECTION AND TEST REPORT FOR

## POWER TRANSFORMER PRE COMMISSIONING

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| | | ITR-EL-0018 | ELECTRICAL | |

| JOB DESCRIPTION | AREA DESCRIPTION |
|---|---|
| | |

| | | | |
|---|---|---|---|
| Transformer No. | | Serial No. | |
| System Voltage | | Rating | |

| NO. | INSPECTION | RESULT | | |
|---|---|---|---|---|
| | | ACCEPT | REJECT | N/A. |
| 1 | Verify that equipment name plates are according to the corresponding drawings. | | | |
| 2 | Make a close examination for shipping brackets or fixtures that may not have been removed during installation. | | | |
| 3 | Verify appropriate anchorage, fixation, required area clearances, physical damage, and cleanliness. | | | |
| 4 | Inspect the physical and mechanical condition of the equipment for any visual damage specially at bushing areas. | | | |
| 5 | Verify that the installation ground is correctly leveled. | | | |
| 6 | Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method. | | | |
| 7 | Verify that fixed tap connections are as per the drawings. | | | |
| 8 | Check CT's ratings and polarity (Visual). (if available) | | | |
| 9 | Verify connection of all alarm, control, and trip circuits for temperature, pressure relief device, pressure fault relay and any other if found. | | | |
| 10 | Verify that the control and alarm settings for temperature indicators are as specified. | | | |
| 11 | Verify that customer connections to remote power, operators, interlocks, and indicators have been made. | | | |

REMARKS:

REFERENCE DOCUMENTS:

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | | |
| SIGNATURE | | | |
| DATE | | | |

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 23/12/2020 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | **Agrood 2 (Area 031)** | Equip. Tag | 031-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283178 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -529.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 07/2019 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 50-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 15500 | Energization date | | | |

## 1. Pre-commissioning inspection

| # | Description | Result | Remark |
|---|---|---|---|
| 1.1 | Verify that equipment name plates are according to the corresponding drawings. | OK | |
| 1.2 | Make a close examination for shipping brackets or fixtures that may not have been removed during installation. | OK | |
| 1.3 | Verify appropriate anchorage, fixation, required area clearances, physical damage, and cleanliness. | NOT OK | The room and transformer must be clean |
| 1.4 | Inspect the physical and mechanical condition of the equipment for any visual damage specially at bushing areas. | OK | |
| 1.5 | Verify that the installation ground is correctly leveled. | OK | |
| 1.6 | Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method. | OK | |
| 1.7 | Verify that fixed tap connections are as per the drawings. | OK | |
| 1.8 | Check CT's ratings and polarity (Visual). | OK | |
| 1.9 | Verify connection of all alarm, control, and trip circuits for temperature, pressure relief device, pressure fault relay and any other if found. | OK | |
| 1.10 | Verify that the control and alarm settings for temperature indicators are as specified. | OK | |

Comments:

Client (PPC): Mohamed Abd El Naby

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"OK": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 23/12/2020 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | **Agrood 2 (Area 031)** | Equip. Tag | 031-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283178 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -529.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 07/2019 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 50-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 15500 | Energization date | | | |

| # | Description | Result | Remark |
|---|---|---|---|
| 1.11 | Verify that customer connections to remote power, operators, interlocks, and indicators have been made. | OK | |
| 1.12 | Verify correct liquid level and oil level indicators. | OK | |
| 1.13 | Inspect for any oil leaks. | OK | |
| 1.14 | Ensure all drain valves are fully closed | OK | |
| 1.15 | Verify the installation of the pressure relief valve. | OK | |
| 1.16 | Check Silica Gel installation, level and color. | OK | |
| 1.17 | Check Buckloz relay physical condition and assembly. | OK | |

## 2. Commissioning checks

| # | Description | Result | Remark |
|---|---|---|---|
| 2.1 | Availability of the required auxiliary supply for control operation. | OK | |
| 2.2 | Cooling system operate correctly and check temperature module settings (If found). | OK | |
| 2.3 | Verify the operation of tap changer (On load/ off load) if any. | OK | On load |

Comments:

Client (PPC): Mohamed Abd El Naby

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 23/12/2020 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | **Agrood 2 (Area 031)** | Equip. Tag | 031-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283178 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -529.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 07/2019 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 50-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 15500 | Energization date | | | |

## 2.4 Insulation resistance test for the winding

| # | Connection | Test Voltage in DC Volts | Resistance in GΩ | | DAR Value 60Sec/15Sec | Remarks |
|---|---|---|---|---|---|---|
| | | | 15 Sec | 60 Sec | | |
| 1 | HV-(LV+E) | 5000 | 17.92 GΩ | 24.02 GΩ | 1.34 | |
| 2 | HV-LV | 2500 | 32.00 GΩ | 43.02 GΩ | 1.34 | |
| 3 | LV-(HV+E) | 1000 | 6.13 GΩ | 14.28 GΩ | 2.32 | |

Comments:

Client (PPC): Mohamed Abd El Naby

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 23/12/2020 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | **Agrood 2 (Area 031)** | Equip. Tag | 031-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283178 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -529.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 07/2019 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 50-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 15500 | Energization date | | | |

**2.5 Turns ratio test**

| Tap Position | HV Applied volts (V) | | | LV Measured volts (V) | | | Measured Ratio | Error |
|---|---|---|---|---|---|---|---|---|
| | RY | YB | BR | ry | yb | br | | |
| 1 | 391.2 | 388.6 | 391.3 | 211.4 | 212.8 | 212.4 | 1.83962 | 0.34273 |
| 2 | 390.1 | 390.2 | 390.4 | 215.4 | 214.9 | 215.4 | 1.81307 | 0.02733 |
| 3 | 390.9 | 389.7 | 391.3 | 218.3 | 217.4 | 217.6 | 1.79382 | 0.11996 |
| 4 | 387.5 | 388.7 | 389 | 218.5 | 218.6 | 219.3 | 1.77514 | 0.23875 |
| 5 | 387.3 | 389.2 | 390.2 | 221.4 | 221.2 | 222 | 1.75549 | 0.31383 |
| 6 | 386.8 | 388.3 | 389.8 | 223.7 | 223.8 | 224.5 | 1.73348 | 0.24518 |
| 7 | 388 | 388.4 | 389.3 | 226.8 | 226.5 | 227.6 | 1.712 | 0.21457 |
| 8 | 386.9 | 388.5 | 387 | 229.4 | 229.2 | 230.1 | 1.68782 | 0.01433 |
| 9A/B/C | 386.6 | 388.3 | 387.9 | 232.4 | 232.2 | 233.2 | 1.66638 | 0.01719 |
| 10 | 386.3 | 388.2 | 388.9 | 234.8 | 234.6 | 235.8 | 1.64974 | 0.23304 |
| 11 | 385.4 | 387.9 | 387.9 | 237.5 | 237.7 | 238.4 | 1.62724 | 0.13798 |
| 12 | 387.6 | 388.1 | 388.3 | 241.5 | 241.2 | 242.2 | 1.60574 | 0.09327 |
| 13 | 384.3 | 391.2 | 385.3 | 244.6 | 244.4 | 245 | 1.58147 | 0.11759 |
| 14 | 383.8 | 385.8 | 390.5 | 247.3 | 247.7 | 248.5 | 1.56032 | 0.14418 |
| 15 | 387.6 | 388.8 | 384.7 | 251.2 | 251.3 | 252.1 | 1.5387 | 0.19269 |
| 16 | 388.1 | 390.2 | 389 | 254.9 | 254.7 | 255.4 | 1.52588 | 0.32699 |
| 17 | 386.7 | 388.9 | 389.5 | 258.2 | 258.3 | 259.2 | 1.502 | 0.13321 |

Comments:

Client (PPC): Mohamed Abd El Naby

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 23/12/2020 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | **Agrood 2 (Area 031)** | Equip. Tag | 031-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283178 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -529.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 07/2019 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 50-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 15500 | Energization date | | | |

- Applied voltage connected only on primary windings
- Applied voltage should be stable
- Real ratio = $\frac{\text{Rated Voltage Primary}}{\text{Rated Voltage Secondary}}$
- Measured ratio =$(\frac{RY+YB+BR)}{3} / \frac{ry+yb+br}{3})$
- Error = $\frac{\text{Real Ratio}-\text{Measured Ratio}}{\text{Real Ration}} \times 100$
- Test is enough on only one tap position

**2.6 Phase Rotation Check**

| | Phase1 | Phase2 | Phase3 |
|---|---|---|---|
| **Secondary voltage** | | | |

| | L 1-2 | L 2-3 | L 3-1 |
|---|---|---|---|
| **Secondary voltage** | | | |

N.B: Secondary Line Voltage must not be greater than 415 VA

Comments:

Client (PPC): Mohamed Abd El Naby

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 23/12/2020 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | **Agrood 2 (Area 031)** | Equip. Tag | 031-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283178 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -529.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 07/2019 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 50-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 15500 | Energization date | | | |

**2.7 Function operation test**

**Temperature sensor/relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm Set Value | OK | |
| 2 | Check Cooling Fan Operation | N/A | |
| 3 | Trip set Value | OK | |
| 4 | Check Upstream Trip | OK | |
| 5 | Check Wiring Connection | OK | Internal only |

**Buchloz relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm set value | OK | |
| 2 | Trip set value | OK | |
| 3 | Wiring Connection | OK | Internal only |

**Transformer operation**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Oil low level alarm value | OK | |
| 2 | Oil low level trip value | OK | |
| 3 | Oil temperature alarm value | OK | |
| 4 | Oil temperature trip value | OK | |
| 5 | Winding temperature alarm value | OK | |
| 6 | Winding temperature trip value | OK | |
| 7 | Pressure relief alarm value | N/A | |
| 8 | Pressure relief trip value | OK | |

Comments:

Client (PPC): Mohamed Abd El Naby

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 23/12/2020 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | **Agrood 2 (Area 031)** | Equip. Tag | 031-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283178 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -529.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 07/2019 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 50-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 15500 | Energization date | | | |

## 3. Pre-energization checks

| # | Description | Result | Remark |
|---|---|---|---|
| 3.1 | Check that transformer is clean and safe to energize. | | |
| 3.2 | Check that Barriers, covers and shutters are installed in its place (if found). | | |
| 3.3 | Verify correct equipment connection to earth link. | | |
| 3.4 | Neutral connection to earth link. | | |
| 3.5 | Check the primary and secondary connection status. | | |

Comments:

Client (PPC): Mohamed Abd El Naby

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

| | | |
|---|---|---|
| Owner : | Egyptian General Petroleum Corporation (EGPC) | Project No: 01251-100-030 :01251-100-031 |
| Contractor | CONSORTIUM (ENPPI / PETROJET) | Document No: ITR-QC-0001 Revision No. : 00 |

# REQUEST FOR INSPECTION

ACTIVITY : POWER TRANSFORMER INSTALLATION

NOTIFICATION NO. : PTJ-ELE-RFI-185 DISCIPLINE : ELECTRICAL

DATE : : 5/2/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| | POWER TRANSFORMER INSTALLATION | | 2-May-21 | | | | |
| 1 | 030-SUB-PTR-1A | | | | | | |
| 2 | 030-SUB-PTR-1B | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

The Tank conservator for Power Transformer PTR -1A is damged and must be replaced by vendor.

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

Enppi PETROJET

# EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

## POWER TRANSFORMER INSTALLATION

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| | | ITR-EL-0017 | ELECTRICAL | |

| JOB DESCRIPTION | | AREA DESCRIPTION | |
|---|---|---|---|
| Transformer No. | | Serial No. | |
| System Voltage | | Rating | |

| NO. | INSPECTION | RESULT | | |
|---|---|---|---|---|
| | | ACCEPT | REJECT | N/A. |
| 1 | The transformer room must be dry and clean, the flowing of the water must be prevented | | | ✓ |
| 2 | Adequate ventilation is to be provided for heat dissipation | ✓ | | |
| 3 | For indoor installation care must be taken to place transformers at a distance from the wall in keeping with insulation level mentioned in the rating plate as well as the requirements stipulated in standards | | | ✓ |
| 4 | The spacing of the HV cables should be according to standards | ✓ | | |
| 5 | If the LV/HV terminal is aluminum, The necessary precautions will be taken for the copper cable or copper bus bar connection | ✓ | | |
| 6 | The connection cables for transformer auxiliary shall be fixed rigidly to cable channels adequately Isolated from active parts as per the requirements of standards | ✓ | | |
| 7 | Check all the screws on HV coils and on LV connections, if necessary tighten according to the installation manual | ✓ | | |

REMARKS:

REFERENCE DOCUMENTS:

| | PETROJET | ENPRI | PMC |
|---|---|---|---|
| NAME : | | Islam Sharif | |
| SIGNATURE | | | |
| DATE | | | |

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

| | | |
|---|---|---|
| Owner : | Egyptian General Petroleum Corporation (EGPC) | Project No: 01251-100-030 :01251-100-031 |
| Contractor | CONSORTIUM (ENPPI / PETROJET) | Document No: ITR-QC-0001 Revision No. : 00 |

# REQUEST FOR INSPECTION

ACTIVITY : NER Panel Installation

NOTIFICATION NO. : PTJ-RFI-EL- 186 DISCIPLINE : ELECTRICAL

DATE : : 5/3/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| | NER Panel Installation | AGROUD MODULE 1 SUB BUILDING | 3-May-21 | | | | |
| 1 | 030-SUB-NER-1A | | | | | | |
| 2 | 030-SUB-NER-1B | | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

030-SUB-NER-1B - must be fixed (Bolts tighten) (Done)

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | | |
| DATE | | | |

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Enppi

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

# LVSWG AND PANEL INSTALLATION

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | DOUCUMENT No | DISPLINE | SHEET NO |
|---|---|---|---|---|
| PTJ-ELE-RFI- | | ITR-EL-0012 | ELECTRICAL | |

| JOB DESCRIPTION | AREA DESCRIPTION |
|---|---|
| | AGROUD MODULE SUB BUILDING |

| Tag No. | | Serial No. | |
|---|---|---|---|

| NO. | INSPECTION | RESULT | | |
|---|---|---|---|---|
| | | ACCEPT | REJECT | N/A. |
| 1 | Verify that equipment name plates are according to the corresponding drawing | ✓ | | |
| 2 | Inspect physical and mechanical condition of the equipment and all components for clear damage. | ✓ | | |
| 3 | Verify appropriate anchorage, required area clearances, physical damage, and correct alignment and cleanliness. | ✓ | ✓ | |
| 4 | Inspect all doors, panels, and sections for paint, dents, scratches, fit, and missing hardware. | ✓ | | |
| 5 | Verify that the barriers and covers are installed correctly. | | | ✓ |
| 6 | Verify that filters are in place and all ventilation openings are clear from any kind of obstacles. | | | ✓ |
| 7 | Verify that main bus bar is connected between the cells. | | | ✓ |
| 8 | Verify that the earth bar is connected between the cells and connected to the earth. | | ✓ | |
| 9 | Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method | | | ✓ |
| 10 | After tightening each electrical connection to the appropriate torque, apply some Varnish between the nut and the screw (or else , between the screw's | | | ✓ |
| 11 | Confirm that lubricants have been correctly applied at the recommended locations. | | | ✓ |
| 12 | Inspect all mechanical indicating devices for correct operation. | | | ✓ |
| 13 | Verify that draw out disconnecting contacts and interlocks function correctly. | | | ✓ |
| 14 | Verify that fuse and/or circuit breaker size and type correspond to drawings. | | | ✓ |
| 15 | Verify that current and potential transformer ratios correspond to drawings. | | | ✓ |
| 16 | Verify that all the interconnection control wires between the cells have been made correctly reference to the control drawings | | | ✓ |
| 17 | Verify that customer connections to remote power, operators, interlocks, and indicators have been made. | | | ✓ |

REMARKS:

REFERENCE DOCUMENTS:

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | | |
| DATE | | | |

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001
Revision No. : 00

# REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- 208 DISCIPLINE : ELEC

DATE : : 02/06/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| 35 | P2-030-SUB-PTR-1A | SUBSTATION | | | | | |
| 36 | P1-030-SUB-PTR-1B | SUBSTATION | | | | | |
| 37 | P2-030-SUB-PTR-1B | SUBSTATION | | | | | |
| 38 | P1-030-SUB-HVSWG-11 | SUBSTATION | | | | | |
| 39 | C8-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 40 | C8-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 41 | C9-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 42 | C10-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 43 | C9-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 44 | C10-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |
| 49 | | | | | | | |
| 50 | | | | | | | |
| 51 | | | | | | | |
| 52 | | | | | | | |
| 53 | | | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | Ahmed Hassan | | |
| SIGNATURE | | Islam Sherif | |
| DATE | 6/6/2021 | | |

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001
Revision No. : 00

# REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- 208 DISCIPLINE : ELEC

DATE : : 02/06/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| 1 | C1-030-SUB-AVR-1A | SUBSTATION | | | | | |
| 2 | C2-030-SUB-PTR-1A | SUBSTATION | | | | | |
| 3 | C1-030-SUB-AVR-1B | SUBSTATION | | | | | |
| 4 | C2-030-SUB-PTR-1B | SUBSTATION | | | | | |
| 5 | ✓C1-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 6 | C2-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 7 | C3-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 8 | C4-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 9 | ✓C5-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 10 | ✓C1-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 11 | C2-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 12 | C3-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 13 | C4-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 14 | ✓C5-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 15 | C1-030-SUB-LVSWG-1A | SUBSTATION | | | | | |
| 16 | C1-030-SUB-LVSWG-1B | SUBSTATION | | | | | |
| 17 | C1-030-PM-04A | SUBSTATION | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | Ahmed Hassan | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | 6/6/2021 | | |

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001
Revision No. : 00

# REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- 208 DISCIPLINE : ELEC

DATE : : 02/06/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| 18 | C1-030-PM-04B | SUBSTATION | | | | | |
| 19 | C1-030-PM-05A | SUBSTATION | | | | | |
| 20 | C1-030-PM-05B | SUBSTATION | | | | | |
| 21 | C3-030-SUB-AVR-1A | SUBSTATION | | | | | |
| 22 | C3-030-SUB-AVR-1B | SUBSTATION | | | | | |
| 23 | P1-030-SUB-TR-1A | SUBSTATION | | | | | |
| 24 | P1-030-SUB-TR-1B | SUBSTATION | | | | | |
| 25 | P1-030-LPDP-CR-1 | SUBSTATION | | | | | |
| 26 | P1-030-LPDP-CR-2 | SUBSTATION | | | | | |
| 27 | P1-030-LPDP-CR-3 | SUBSTATION | | | | | |
| 28 | C6-030-SUB-HVSWG-6.6A | SUBSTATION | | | | | |
| 29 | C6-030-SUB-HVSWG-6.6B | SUBSTATION | | | | | |
| 30 | C2-030-SUB-LVSWG-1A | SUBSTATION | | | | | |
| 31 | C2-030-SUB-LVSWG-1B | SUBSTATION | | | | | |
| 32 | P1-030-SUB-NER-1A | SUBSTATION | | | | | |
| 33 | P1-030-SUB-NER-1B | SUBSTATION | | | | | |
| 34 | P1-030-SUB-PTR-1A | SUBSTATION | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | Ahmed Hussan | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | 6/6/2021 | | |

Enppi PETROJET

# EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

## CABLE TERMINATION AND SPLICING

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| PTJ-ELE-RFI- | 02/06/2021 | ITR-EL-0009 | ELEC | 1 OF 1 |

| | | | | | |
|---|---|---|---|---|---|
| Item/Tag NO. | For All Cables tages in PTJ-ELE-RFI- | | | | |
| Type :- | | Core: | | Size: | |

| NO. | Description of check | RESUNT ACCEPT | REJECT | N/A. |
|---|---|---|---|---|
| 1 | Check cable glands are correct type and size as per cable schedule. | ✓ | | |
| 2 | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓ | | |
| 3 | Check cable tag is done correctly. | ✓ | | |
| 4 | Test and confirm conductor, phase continuity. | ✓ | | |
| 5 | Check insulation resistance test (megger) is completed *' | ✓ | | |
| 6 | Check Hi-pot test is completed, only for MV/HV cables *'' | ✗ | | ✓ |
| 7 | Connect all cores at both ends and confirm all connections are correct as per termination diagram. | ✓ | | |
| 8 | Confirm spare cores, screens are earthed and conform to design drawings/specifications | ✓ | | |
| 9 | Check enclosure cover is installed , no damages and no bolts are missing | ✓ | | |
| 10 | Calibration test certificate of testing equipment to be checked. | | | ✓ |

Remarks :

*' : ITR-EL-006A/B

*'' :ITR-EL-008

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | Ahmed Hassan | | |
| SIGNATURE | | | |
| DATE | 6/6/2021 | | |

® Islam Sherif

ITR-EL-0009

| Enppi PETROJET | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

| | | |
|---|---|---|
| Owner : | Egyptian General Petroleum Corporation (EGPC) | Project No: 01251-100-030 :01251-100-031 |
| Contractor | CONSORTIUM (ENPPI / PETROJET) | Document No: ITR-QC-0001 Revision No. : 00 |

# REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND SPLICING

NOTIFICATION NO. : PTJ-INS-RFI- 206 DISCIPLINE : E&I

DATE : : 5/24/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| | CABLE TERMINATIN AND SPLICING | MODULE 1 | 24-May-21 | | | | |
| 1 | P/1-030-SUB-PTR-1A | | | | | | |
| 2 | P/2-030-SUB-PTR-1A | | | | | | |
| 3 | P/3-030-SUB-PTR-1A | | | | | | |
| 4 | G1-030-SUB-NER-1A | | | | | | |
| 5 | P/1-030-SUB-PTR-1B | | | | | | |
| 6 | P/2-030-SUB-PTR-1B | | | | | | |
| 7 | P/3-030-SUB-PTR-1B | | | | | | |
| 8 | G1-030-SUB-NER-1B | | | | | | |
| 9 | P/1-030-SUB-HVSWG-6.6A | | | | | | |
| 10 | P/2-030-SUB-HVSWG-6.6A | | | | | | |
| 11 | P/3-030-SUB-HVSWG-6.6A | | | | | | |
| 12 | P/4-030-SUB-HVSWG-6.6A | | | | | | |
| 13 | P/1-030-SUB-HVSWG-6.6B | | | | | | |
| 14 | P/2-030-SUB-HVSWG-6.6B | | | | | | |
| 15 | P/3-030-SUB-HVSWG-6.6B | | | | | | |
| 16 | P/4-030-SUB-HVSWG-6.6B | | | | | | |
| 17 | P-030-SUB-TR-1A | | | | | | |
| 18 | P-030-SUB-TR-1B | | | | | | |
| 19 | P-030-EPM2-TR-1 | | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | | |
| SIGNATURE | | Islam Shorir | M. Omar |
| DATE | | | |

Enppi PETROJET

# EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

## CABLE TERMINATION AND SPLICING

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| RFI-206 | | ITR-EL-0009 | ELEC | 1 OF 1 |

| Item/Tag NO. | | | | | |
|---|---|---|---|---|---|
| Type :- | | Core: | | Size: | |

| NO. | Description of check | RESUNT ACCEPT | REJECT | N/A. |
|---|---|---|---|---|
| 1 | Check cable glands are correct type and size as per cable schedule. | ✓ | | |
| 2 | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓ | | |
| 3 | Check cable tag is done correctly. | ✓ | | |
| 4 | Test and confirm conductor, phase continuity. | ✓ | | |
| 5 | Check insulation resistance test (megger) is completed *' | ✓ | | |
| 6 | Check Hi-pot test is completed, only for MV/HV cables *'' | ✓ | | |
| 7 | Connect all cores at both ends and confirm all connections are correct as per termination diagram. | ✓ | | |
| 8 | Confirm spare cores, screens are earthed and conform to design drawings/specifications | | | ✓ |
| 9 | Check enclosure cover is installed , no damages and no bolts are missing | ✓ | | |
| 10 | Calibration test certificate of testing equipment to be checked. | ✓ | | |

Remarks :

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | ® Islam Sherif | |
| SIGNATURE | | | M. omar |
| DATE | | | |

| Enppi | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001
Revision No. : 00

# REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- DISCIPLINE : ELEC

DATE : : 27/03/2021

| NO. | DESCRIPTION | LOCATION | DATE / TIME | INSPECTION | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | PETROJET | ENPPI | PMC | |
| 35 | D-030-SUB-LVSWG-1B | SUBSTATION | | | | | |
| 36 | D-030-SUB-IRP-1 | SUBSTATION | | | | | |
| 37 | P1-030-SUB-LVSWG-1A | SUBSTATION | | | | | |
| 38 | P1-030-SUB-LVSWG-1B | SUBSTATION | | | | | |
| 39 | C1-030-SUB-ACUPS-1 | SUBSTATION | | | | | |
| 40 | C2-030-SUB-ACUPS-1 | SUBSTATION | | | | | |
| 41 | C1-030-SUB-DCUPS-1 | SUBSTATION | | | | | |
| 42 | C2-030-SUB-DCUPS-1 | SUBSTATION | | | | | |
| 43 | P-030-SUB-AVR-1A | SUBSTATION | | | | | |
| 44 | P-030-SUB-AVR-1B | SUBSTATION | | | | | |
| 45 | P1-030-SUB-DCUPS-1 | SUBSTATION | | | | | |
| 46 | P-030-SUB-UPDP-1 | SUBSTATION | | | | | |
| 47 | P-030-SUB-DCUPS-1A | SUBSTATION | | | | | |
| 48 | P-030-SUB-DCUPS-1B | SUBSTATION | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | | |
| SIGNATURE | | | |
| DATE | | | |

| Enppi PETROJET | EGPC CRUDE OIL TANK FARM | EGPC |
|---|---|---|

INSPECTION AND TEST REPORT FOR

# CABLE TERMINATION AND SPLICING

SYSTEM NO.:

| INSPECTION REPORT NUMBER | INSPECTION DATE & TIME | ITR NUMBER | DISPLINE | SHEET NO |
|---|---|---|---|---|
| PTJ-ELE-RFI- | 27/03/2021 | ITR-EL-0009 | ELEC | 1 OF 1 |

| | | | | | |
|---|---|---|---|---|---|
| Item/Tag NO. | For All Cables tages in PTJ-ELE-RFI- | | | | |
| Type :- | | Core: | | Size: | |

| NO. | Description of check | RESUNT | | |
|---|---|---|---|---|
| | | ACCEPT | REJECT | N/A. |
| 1 | Check cable glands are correct type and size as per cable schedule. | ✓ | | |
| 2 | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓ | | |
| 3 | Check cable tag is done correctly. | ✓ | | |
| 4 | Test and confirm conductor, phase continuity. | ✓ | | |
| 5 | Check insulation resistance test (megger) is completed *' | ✓ | | |
| 6 | Check Hi-pot test is completed, only for MV/HV cables *'' | | | ✓ |
| 7 | Connect all cores at both ends and confirm all connections are correct as per termination diagram. | ✓ | | |
| 8 | Confirm spare cores, screens are earthed and conform to design drawings/specifications | ✓ | | ✓ |
| 9 | Check enclosure cover is installed , no damages and no bolts are missing | ✓ | | |
| 10 | Calibration test certificate of testing equipment to be checked. | ✓ | | |

Remarks :

*' : ITR-EL-006A/B

*'' :ITR-EL-008

| | PETROJET | ENPPI | PMC |
|---|---|---|---|
| NAME : | | Reiss Iwasfi | |
| SIGNATURE | | | |
| DATE | | | |

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.08- FAT Reports & Certificates

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.09- SAT Reports & Certificates

30EL-001

| 2 Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

## 1. Pre-commissioning inspection

| # | Description | Result | Remark |
|---|---|---|---|
| 1.1 | Verify that equipment name plates are according to the corresponding drawings. | OK | |
| 1.2 | Make a close examination for shipping brackets or fixtures that may not have been removed during installation. | OK | |
| 1.3 | Verify appropriate anchorage, fixation, required area clearances, physical damage, and cleanliness. | NOT OK | The room and transformer must be clean |
| 1.4 | Inspect the physical and mechanical condition of the equipment for any visual damage specially at bushing areas. | OK | |
| 1.5 | Verify that the installation ground is correctly leveled. | OK | |
| 1.6 | Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method. | OK | |
| 1.7 | Verify that fixed tap connections are as per the drawings. | OK | |
| 1.8 | Check CT's ratings and polarity (Visual). | OK | |
| 1.9 | Verify connection of all alarm, control, and trip circuits for temperature, pressure relief device, pressure fault relay and any other if found. | OK | |
| 1.10 | Verify that the control and alarm settings for temperature indicators are as specified. | OK | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar.

Customer(Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

| # | Description | Result | Remark |
|---|---|---|---|
| 1.11 | Verify that customer connections to remote power, operators, interlocks, and indicators have been made. | OK | |
| 1.12 | Verify correct liquid level and oil level indicators. | OK | |
| 1.13 | Inspect for any oil leaks. | Not OK | Oil leak from conservator still under Schneider investigation to solve this problem * |
| 1.14 | Ensure all drain valves are fully closed | OK | |
| 1.15 | Verify the installation of the pressure relief valve. | OK | |
| 1.16 | Check Silica Gel installation, level and color. | OK | |
| 1.17 | Check Buckloz relay physical condition and assembly. | OK | |

## 2. Commissioning checks

| # | Description | Result | Remark |
|---|---|---|---|
| 2.1 | Availability of the required auxiliary supply for control operation. | OK | |
| 2.2 | Cooling system operate correctly and check temperature module settings (If found). | OK | |
| 2.3 | Verify the operation of tap changer (On load/ off load) if any. | OK | On load |

Comments: * new Conservator was provided by Schneider and installed/tested by Schneider rep. during the period from 28 to 30/8/2021 and test results are successful and Tr. Can be put in service

Client (PPC): Mohamed Ibrahim for. M. omar

Customer(Enppi): Ahmed Nadeem A. Nadeem 31/8/2021

Schneider rep.: Khamis Ramadan 31/8/2021

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

### 2.4 Insulation resistance test for the winding

| # | Connection | Test Voltage in DC Volts | Resistance in GΩ | | DAR Value 60Sec/30Sec | Remarks |
|---|---|---|---|---|---|---|
| | | | 30 Sec | 60 Sec | | |
| 1 | HV-(LV+E) | 5000 | 12.82 GΩ | 14.98 GΩ | 1.16 | |
| 2 | HV-LV | 2500 | 18.74 GΩ | 23.33 GΩ | 1.24 | |
| 3 | LV-(HV+E) | 1000 | 8.08 GΩ | 12.69GΩ | 1.57 | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

**2.5 Turns ratio test**

| Tap Position | HV Applied volts (V) | | | LV Measured volts (V) | | | Measured Ratio | Error |
|---|---|---|---|---|---|---|---|---|
| | RY | YB | BR | ry | yb | br | | |
| 1 | 402.4 | 403.6 | 402.2 | 219.5 | 219.4 | 219.1 | 1.83617 | -0.15473887 |
| 2 | 402.6 | 403 | 402.3 | 222 | 221.9 | 221.7 | 1.81475 | -0.12015212 |
| 3 | 402.6 | 403 | 402.3 | 224.6 | 224.5 | 224.2 | 1.794 | -0.13021597 |
| 4 | 402.6 | 403 | 402.3 | 227.3 | 227.1 | 226.9 | 1.77293 | -0.11434837 |
| 5 | 402.5 | 403 | 402.3 | 230 | 229.8 | 229.6 | 1.75196 | -0.11189854 |
| 6 | 402.6 | 403 | 402.3 | 232.7 | 232.6 | 232.3 | 1.73151 | -0.1310171 |
| 7 | 402.6 | 403 | 402.3 | 235.6 | 235.4 | 235.2 | 1.71042 | -0.12226205 |
| 8 | 402.5 | 403 | 402.3 | 238.5 | 238.4 | 238.1 | 1.68923 | -0.09807036 |
| 9A/B/C | 402.6 | 403 | 402.3 | 241.5 | 241.3 | 241.1 | 1.6686 | -0.15473887 |
| 10 | 402.5 | 403 | 402.3 | 244.5 | 244.4 | 244.1 | 1.64775 | -0.11178539 |
| 11 | 402.6 | 403 | 402.3 | 247.7 | 247.5 | 247.2 | 1.62702 | -0.12433687 |
| 12 | 402.6 | 403 | 402.4 | 250.9 | 250.7 | 250.4 | 1.60638 | -0.13343086 |
| 13 | 402.5 | 403 | 402.3 | 254.2 | 254 | 253.7 | 1.58525 | -0.12088891 |
| 14 | 402.5 | 403 | 402.3 | 257.5 | 257.4 | 257.1 | 1.56451 | -0.12364293 |
| 15 | 402.6 | 403 | 402.3 | 261.1 | 261 | 260.6 | 1.54325 | -0.10255560 |
| 16 | 402.6 | 403 | 402.3 | 264.6 | 264.5 | 264.2 | 1.52263 | -0.11295285 |
| 17 | 402.6 | 403 | 402.3 | 268.3 | 268.1 | 267,9 | 1.5018 | -0.12018732 |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

- Applied voltage connected only on primary windings
- Applied voltage should be stable
- Real ratio = $\frac{\text{Rated Voltage Primary}}{\text{Rated Voltage Secondary}}$
- Measured ratio =$(\frac{RY+YB+BR)}{3} / \frac{ry+yb+br}{3})$
- Error = $\frac{\text{Real Ratio} - \text{Measured Ratio}}{\text{Real Ration}} \times 100$
- Test is enough on only one tap position

### 2.6 Phase Rotation Check

| Secondary voltage | Phase1 | Phase2 | Phase3 |
|---|---|---|---|
| | N/A | N/A | N/A |

| Secondary voltage | L 1-2 | L 2-3 | L 3-1 |
|---|---|---|---|
| | N/A | N/A | N/A |

N.B: Secondary Line Voltage must not be greater than 415 VA

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer(Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

**2.7 Function operation test**

**Temperature sensor/relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm Set Value | OK | |
| 2 | Check Cooling Fan Operation | N/A | |
| 3 | Trip set Value | OK | |
| 4 | Check Upstream Trip | OK | |
| 5 | Check Wiring Connection | OK | Internal only |

**Buchloz relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm set value | OK | |
| 2 | Trip set value | OK | |
| 3 | Wiring Connection | OK | Internal only |

**Transformer operation**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Oil low level alarm value | OK | MAX |
| 2 | Oil low level trip value | OK | MIN |
| 3 | Oil temperature alarm value | OK | 90 °C |
| 4 | Oil temperature trip value | OK | 100°C |
| 5 | Winding temperature alarm value | OK | 110°C |
| 6 | Winding temperature trip value | OK | 120°C |
| 7 | Pressure relief alarm value | N/A | |
| 8 | Pressure relief trip value | OK | 0.70 Bar |

Comments:

Client (PPC): Mohamed Ibrahim

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

## 3. Pre-energization checks

| # | Description | Result | Remark |
|---|---|---|---|
| 3.1 | Check that transformer is clean and safe to energize. | | |
| 3.2 | Check that Barriers, covers and shutters are installed in its place (if found). | | |
| 3.3 | Verify correct equipment connection to earth link. | | |
| 3.4 | Neutral connection to earth link. | | |
| 3.5 | Check the primary and secondary connection status. | | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer(Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

## 1. Pre-commissioning inspection

| # | Description | Result | Remark |
|---|---|---|---|
| 1.1 | Verify that equipment name plates are according to the corresponding drawings. | OK | |
| 1.2 | Make a close examination for shipping brackets or fixtures that may not have been removed during installation. | OK | |
| 1.3 | Verify appropriate anchorage, fixation, required area clearances, physical damage, and cleanliness. | NOT OK | The room and transformer must be clean |
| 1.4 | Inspect the physical and mechanical condition of the equipment for any visual damage specially at bushing areas. | OK | |
| 1.5 | Verify that the installation ground is correctly leveled. | OK | |
| 1.6 | Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method. | OK | |
| 1.7 | Verify that fixed tap connections are as per the drawings. | OK | |
| 1.8 | Check CT's ratings and polarity (Visual). | OK | |
| 1.9 | Verify connection of all alarm, control, and trip circuits for temperature, pressure relief device, pressure fault relay and any other if found. | OK | |
| 1.10 | Verify that the control and alarm settings for temperature indicators are as specified. | OK | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

| # | Description | Result | Remark |
|---|---|---|---|
| 1.11 | Verify that customer connections to remote power, operators, interlocks, and indicators have been made. | OK | |
| 1.12 | Verify correct liquid level and oil level indicators. | OK | |
| 1.13 | Inspect for any oil leaks. | OK | |
| 1.14 | Ensure all drain valves are fully closed | OK | |
| 1.15 | Verify the installation of the pressure relief valve. | OK | |
| 1.16 | Check Silica Gel installation, level and color. | OK | |
| 1.17 | Check Buckloz relay physical condition and assembly. | OK | |

## 2. Commissioning checks

| # | Description | Result | Remark |
|---|---|---|---|
| 2.1 | Availability of the required auxiliary supply for control operation. | OK | |
| 2.2 | Cooling system operate correctly and check temperature module settings (If found). | OK | |
| 2.3 | Verify the operation of tap changer (On load/ off load) if any. | OK | On load |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer (Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

## 2.4 Insulation resistance test for the winding

| # | Connection | Test Voltage in DC Volts | Resistance in GΩ | | DAR Value 60Sec/30Sec | Remarks |
|---|---|---|---|---|---|---|
| | | | 30 Sec | 60 Sec | | |
| 1 | HV-(LV+E) | 5000 | 18 GΩ | 26.37 GΩ | 1.46 | |
| 2 | HV-LV | 2500 | 25 GΩ | 32.21 GΩ | 1.28 | |
| 3 | LV-(HV+E) | 1000 | 9.31GΩ | 13.34 GΩ | 1.43 | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

- Applied voltage connected only on primary windings
- Applied voltage should be stable
- Real ratio = $\frac{\text{Rated Voltage Primary}}{\text{Rated Voltage Secondary}}$
- Measured ratio =$(\frac{RY+YB+BR)}{3} / \frac{ry+yb+br}{3})$
- Error = $\frac{\text{Real Ratio} - \text{Measured Ratio}}{\text{Real Ration}} \times 100$
- Test is enough on only one tap position

**2.6 Phase Rotation Check**

| | Phase1 | Phase2 | Phase3 |
|---|---|---|---|
| **Secondary voltage** | N/A | N/A | N/A |

| | L 1-2 | L 2-3 | L 3-1 |
|---|---|---|---|
| **Secondary voltage** | N/A | N/A | N/A |

N.B: Secondary Line Voltage must not be greater than 415 VA

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

### 2.5 Turns ratio test

| Tap Position | HV Applied volts (V) | | | LV Measured volts (V) | | | Measured Ratio | Error |
|---|---|---|---|---|---|---|---|---|
| | RY | YB | BR | ry | yb | br | | |
| 1 | 402.5 | 402.8 | 402.3 | 219.4 | 219.3 | 219.1 | 1.83582 | -0.135437685 |
| 2 | 402.5 | 402.8 | 402.2 | 222 | 221.9 | 221.6 | 1.81443 | -0.102036375 |
| 3 | 402.5 | 402.8 | 402.1 | 224.5 | 224.3 | 224.1 | 1.79432 | -0.148264886 |
| 4 | 402.4 | 402.8 | 402.1 | 227.1 | 227 | 226.7 | 1.77335 | -0.138109049 |
| 5 | 402.4 | 402.8 | 402.1 | 229.8 | 229.7 | 229.4 | 1.7525 | -0.14308525 |
| 6 | 402.4 | 402.8 | 402.1 | 232.6 | 232.5 | 232.2 | 1.73139 | -0.124337092 |
| 7 | 402.4 | 402.8 | 402.1 | 235.4 | 235.3 | 235 | 1.71078 | -0.143431362 |
| 8 | 402.4 | 402.8 | 402.1 | 238.4 | 238.2 | 238 | 1.68948 | -0.112639252 |
| 9A/B/C | 402.4 | 402.8 | 402.1 | 241.4 | 241.2 | 241 | 1.66846 | -0.107794362 |
| 10 | 402.4 | 402.8 | 402.1 | 244.4 | 244.2 | 244 | 1.64797 | -0.124979992 |
| 11 | 402.4 | 402.8 | 402.1 | 247.6 | 247.4 | 247.1 | 1.62687 | -0.115058099 |
| 12 | 402.4 | 402.8 | 402.1 | 250.8 | 250.6 | 250.3 | 1.60609 | -0.115346155 |
| 13 | 402.4 | 402.8 | 402.1 | 254.1 | 253.9 | 253.6 | 1.58522 | -0.118863335 |
| 14 | 402.4 | 402.8 | 402.1 | 257.5 | 257.3 | 257.3 | 1.56366 | -0.069231826 |
| 15 | 402.4 | 402.8 | 402.1 | 260.9 | 260.8 | 260.5 | 1.54347 | -0.116787716 |
| 16 | 402.5 | 402.9 | 402.2 | 264.5 | 264.4 | 264 | 1.52302 | -0.13858047 |
| 17 | 402.5 | 402.9 | 402.3 | 268.2 | 268.1 | 267.7 | 1.50211 | -0.140961857 |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

**2.7 Function operation test**

**Temperature sensor/relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm Set Value | OK | |
| 2 | Check Cooling Fan Operation | N/A | |
| 3 | Trip set Value | OK | |
| 4 | Check Upstream Trip | OK | |
| 5 | Check Wiring Connection | OK | Internal only |

**Buchloz relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm set value | OK | |
| 2 | Trip set value | OK | |
| 3 | Wiring Connection | OK | Internal only |

**Transformer operation**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Oil low level alarm value | OK | MAX |
| 2 | Oil low level trip value | OK | MIN |
| 3 | Oil temperature alarm value | OK | 90°C |
| 4 | Oil temperature trip value | OK | 100°C |
| 5 | Winding temperature alarm value | OK | 110°C |
| 6 | Winding temperature trip value | OK | 120°C |
| 7 | Pressure relief alarm value | N/A | |
| 8 | Pressure relief trip value | OK | 0.70 Bar |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

## 3. Pre-energization checks

| # | Description | Result | Remark |
|---|---|---|---|
| 3.1 | Check that transformer is clean and safe to energize. | | |
| 3.2 | Check that Barriers, covers and shutters are installed in its place (if found). | | |
| 3.3 | Verify correct equipment connection to earth link. | | |
| 3.4 | Neutral connection to earth link. | | |
| 3.5 | Check the primary and secondary connection status. | | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



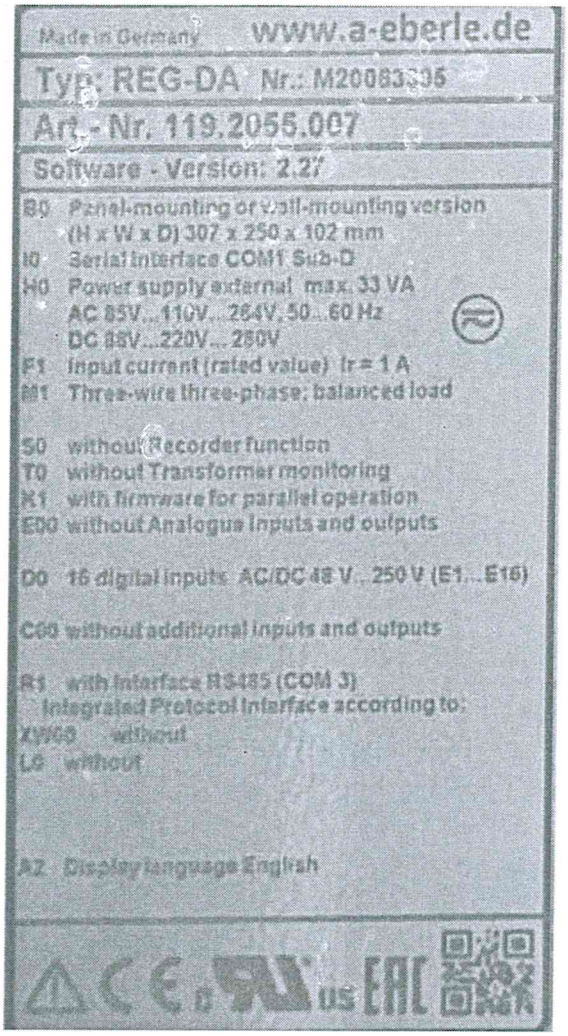
Internal

30GL-01

| TECHNO MASTER | AVR Testing and Commissioning Report | Schneider Electric |
|---|---|---|
| Project name: Agrood – Suez | AVR (1) Serial No: M20063395 | Date : 22/12/2020 |

# Site Commissioning for AVR of Power Transformer 8 MVA 11 / 6.6 KV

TECHNO MASTER C.R 40980 El Iaselky st.Maadi - Cairo




| Tested by: Ahmed Ibrahim | Witnessed by: A. Nadeem | Witnessed by: Mohamed Abdel Ghany | Page 1 of 4 |
|---|---|---|---|
| Signature: Ahmed Ibrahim | Signature A. Nadeem | Signature | |

# AVR SITE COMMISSIONING

## 1. AVR TEST REPORT

- **Test objective:**
  Checking the AVR manual/auto operations, and check the limit values of the AVR (overcurrent block, under voltage block, and over voltage block).

- **Procedure:**
  1. the manual operation of the AVR (raise & lower)
  2. Apply voltage equal to the desired value, AVR should not react.
  3. Apply voltage greater than the desired value by more than 4%, AVR should LOWER the voltage (as raise a tap) after Tl=60 seconds.
  4. Apply voltage less than the desired value by more than 4%, AVR should RAISE the voltage (as lower a tap) after Tl=60 seconds.
  5. Apply voltage greater than the over voltage limit value (110%), AVR should be blocked.
  6. Apply voltage less than the under-voltage limit value (90%), AVR should be blocked.
  7. Apply voltage greater than the desired value by more than 4%, in the same time inject current more than the overcurrent limit value (100%), AVR should be blocked.
  8. Record all the results.

TECHNOMASTER C.R 40980 El Iaselky st.Maadi - Cairo - Egypt

## 1. Setting

| Item | Value |
|---|---|
| Set point of Primary Voltage | 6.6 KV |
| Set point of Secondary Voltage | 110 V |
| Desired Value | +/- 4% |
| T1 | 60 Sec. |
| T2 | 10 Sec. |
| Over Voltage | 10% |
| Under Voltage | -10 % |
| Over Current | 110 % |

## 2. Programmable Led

| No | Item | Remark |
|---|---|---|
| 1 | Remote | OK |
| 2 | Local | OK |
| 3 | < V | OK |
| 4 | >V | OK |
| 5 | Inh. High | OK |
| 6 | Inh. Low | OK |
| 7 | Par.prog | Ok |
| 8 | Tc in prog | Ok |
| 9 | Up | Ok |
| 10 | Down | Ok |
| 11 | >I | Ok |

3. Manual operation is working properly input and Output as Scheme during carry out Function

TECHNOMASTER C.R 40980 El laselky st.Maadi - Cairo - Egypt

## 4. Automatic operation

a. Measurement:

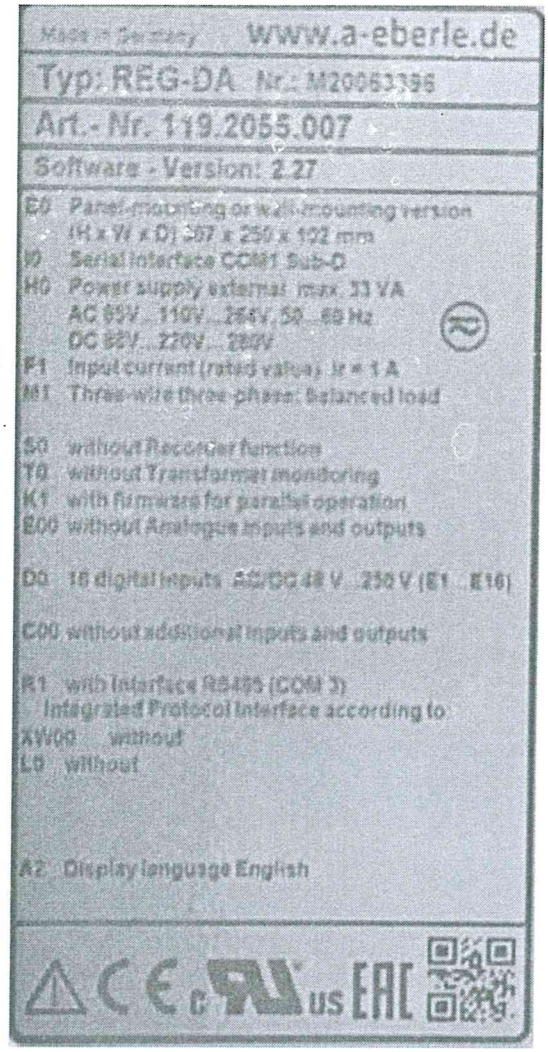
| Applied voltage (V) | Reading voltage (KV) | Applied current (A) | Reading Current (A) |
|---|---|---|---|
| 63.5 | 6.597 | 5 | 1252 |

a. Test Results:

| Applied voltage (V) | Applied current (A) | AVR behavior | Result |
|---|---|---|---|
| 63.5 | 5 | No reaction | OK |
| 67 | 5 | Raise a tap after Tl=60 sec so on. | OK |
| 60 | 5 | Lower a tap after Tl=60 sec so on. | OK |
| 55 | 5 | AVR blocked due to UNDER-VOLTAGE | OK |
| 70 | 5 | AVR blocked due to OVER-VOLTAGE | OK |
| 63.5 | 6 | AVR blocked due to OVER-CURRENT | OK |

TECHNOMASTER C.R 40980 El laselky st.Maadi - Cairo - Egypt

# Site Commissioning for AVR of Power Transformer 8 MVA 11 / 6.6 KV



# AVR SITE COMMISSIONING

## 1. AVR TEST REPORT

- **Test objective:**
  Checking the AVR manual/auto operations, and check the limit values of the AVR (overcurrent block, under voltage block, and over voltage block).

- **Procedure:**
  1. the manual operation of the AVR (raise & lower)
  2. Apply voltage equal to the desired value, AVR should not react.
  3. Apply voltage greater than the desired value by more than 4%, AVR should LOWER the voltage (as raise a tap) after Tl=60 seconds.
  4. Apply voltage less than the desired value by more than 4%, AVR should RAISE the voltage (as lower a tap) after Tl=60 seconds.
  5. Apply voltage greater than the over voltage limit value (110%), AVR should be blocked.
  6. Apply voltage less than the under-voltage limit value (90%), AVR should be blocked.
  7. Apply voltage greater than the desired value by more than 4%, in the same time inject current more than the overcurrent limit value (100%), AVR should be blocked.
  8. Record all the results.

TECHNOMASTER C.R 40980 El Iaselky st.Maadi - Cairo - Egypt

## 1. Setting

| Item | Value |
|---|---|
| Set point of Primary Voltage | 6.6 KV |
| Set point of Secondary Voltage | 110 V |
| Desired Value | +/- 4% |
| T1 | 60 Sec. |
| T2 | 10 Sec. |
| Over Voltage | 10% |
| Under Voltage | -10 % |
| Over Current | 110 % |

## 2. Programmable Led

| No | Item | Remark |
|---|---|---|
| 1 | Remote | OK |
| 2 | Local | OK |
| 3 | < V | OK |
| 4 | >V | OK |
| 5 | Inh. High | OK |
| 6 | Inh. Low | OK |
| 7 | Par.prog | Ok |
| 8 | Tc in prog | Ok |
| 9 | Up | Ok |
| 10 | Down | Ok |
| 11 | >I | Ok |

3. Manual operation is working properly input and Output as Scheme during carry out Function

TECHNOMASTER C.R 40980 El Iaselky st.Maadi - Cairo - Egypt

## 4. Automatic operation

a. Measurement:

| Applied voltage (V) | Reading voltage (KV) | Applied current (A) | Reading Current (A) |
|---|---|---|---|
| 63.5 | 6.597 | 5 | 1252 |

a. Test Results:

| Applied voltage (V) | Applied current (A) | AVR behavior | Result |
|---|---|---|---|
| 63.5 | 5 | No reaction | OK |
| 67 | 5 | Raise a tap after Tl=60 sec so on. | OK |
| 60 | 5 | Lower a tap after Tl=60 sec so on. | OK |
| 55 | 5 | AVR blocked due to UNDER-VOLTAGE | OK |
| 70 | 5 | AVR blocked due to OVER-VOLTAGE | OK |
| 63.5 | 6 | AVR blocked due to OVER-CURRENT | OK |

TECHNOMASTER C.R 40980 El Iaselky st.Maadi - Cairo - Egypt

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

## 1. Pre-commissioning inspection

| # | Description | Result | Remark |
|---|---|---|---|
| 1.1 | Verify that equipment name plates are according to the corresponding drawings. | OK | |
| 1.2 | Make a close examination for shipping brackets or fixtures that may not have been removed during installation. | OK | |
| 1.3 | Verify appropriate anchorage, fixation, required area clearances, physical damage, and cleanliness. | NOT OK | The room and transformer must be clean |
| 1.4 | Inspect the physical and mechanical condition of the equipment for any visual damage specially at bushing areas. | OK | |
| 1.5 | Verify that the installation ground is correctly leveled. | OK | |
| 1.6 | Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method. | OK | |
| 1.7 | Verify that fixed tap connections are as per the drawings. | OK | |
| 1.8 | Check CT's ratings and polarity (Visual). | OK | |
| 1.9 | Verify connection of all alarm, control, and trip circuits for temperature, pressure relief device, pressure fault relay and any other if found. | OK | |
| 1.10 | Verify that the control and alarm settings for temperature indicators are as specified. | OK | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer(Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

| # | Description | Result | Remark |
|---|---|---|---|
| 1.11 | Verify that customer connections to remote power, operators, interlocks, and indicators have been made. | OK | |
| 1.12 | Verify correct liquid level and oil level indicators. | OK | |
| 1.13 | Inspect for any oil leaks. | Not OK | Oil leak from conservator still under Schneider investigation to solve this problem * |
| 1.14 | Ensure all drain valves are fully closed | OK | |
| 1.15 | Verify the installation of the pressure relief valve. | OK | |
| 1.16 | Check Silica Gel installation, level and color. | OK | |
| 1.17 | Check Buckloz relay physical condition and assembly. | OK | |

## 2. Commissioning checks

| # | Description | Result | Remark |
|---|---|---|---|
| 2.1 | Availability of the required auxiliary supply for control operation. | OK | |
| 2.2 | Cooling system operate correctly and check temperature module settings (If found). | OK | |
| 2.3 | Verify the operation of tap changer (On load/ off load) if any. | OK | On load |

Comments: * new Conservator was provided by Schneider and installed / tested by Schneider rep. during the period from 28 to 30/8/2021 and test results are successful and Tr. Can be put in service

Client (PPC): Mohamed Ibrahim for. M. omar

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

31/8/2021

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

### 2.4 Insulation resistance test for the winding

| # | Connection | Test Voltage in DC Volts | Resistance in GΩ | | DAR Value 60Sec/30Sec | Remarks |
|---|---|---|---|---|---|---|
| | | | 30 Sec | 60 Sec | | |
| 1 | HV-(LV+E) | 5000 | 12.82 GΩ | 14.98 GΩ | 1.16 | |
| 2 | HV-LV | 2500 | 18.74 GΩ | 23.33 GΩ | 1.24 | |
| 3 | LV-(HV+E) | 1000 | 8.08 GΩ | 12.69GΩ | 1.57 | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

**2.5 Turns ratio test**

| Tap Position | HV Applied volts (V) | | | LV Measured volts (V) | | | Measured Ratio | Error |
|---|---|---|---|---|---|---|---|---|
| | RY | YB | BR | ry | yb | br | | |
| 1 | 402.4 | 403.6 | 402.2 | 219.5 | 219.4 | 219.1 | 1.83617 | -0.15473887 |
| 2 | 402.6 | 403 | 402.3 | 222 | 221.9 | 221.7 | 1.81475 | -0.12015212 |
| 3 | 402.6 | 403 | 402.3 | 224.6 | 224.5 | 224.2 | 1.794 | -0.13021597 |
| 4 | 402.6 | 403 | 402.3 | 227.3 | 227.1 | 226.9 | 1.77293 | -0.11434837 |
| 5 | 402.5 | 403 | 402.3 | 230 | 229.8 | 229.6 | 1.75196 | -0.11189854 |
| 6 | 402.6 | 403 | 402.3 | 232.7 | 232.6 | 232.3 | 1.73151 | -0.1310171 |
| 7 | 402.6 | 403 | 402.3 | 235.6 | 235.4 | 235.2 | 1.71042 | -0.12226205 |
| 8 | 402.5 | 403 | 402.3 | 238.5 | 238.4 | 238.1 | 1.68923 | -0.09807036 |
| 9A/B/C | 402.6 | 403 | 402.3 | 241.5 | 241.3 | 241.1 | 1.6686 | -0.15473887 |
| 10 | 402.5 | 403 | 402.3 | 244.5 | 244.4 | 244.1 | 1.64775 | -0.11178539 |
| 11 | 402.6 | 403 | 402.3 | 247.7 | 247.5 | 247.2 | 1.62702 | -0.12433687 |
| 12 | 402.6 | 403 | 402.4 | 250.9 | 250.7 | 250.4 | 1.60638 | -0.13343086 |
| 13 | 402.5 | 403 | 402.3 | 254.2 | 254 | 253.7 | 1.58525 | -0.12088891 |
| 14 | 402.5 | 403 | 402.3 | 257.5 | 257.4 | 257.1 | 1.56451 | -0.12364293 |
| 15 | 402.6 | 403 | 402.3 | 261.1 | 261 | 260.6 | 1.54325 | -0.10255560 |
| 16 | 402.6 | 403 | 402.3 | 264.6 | 264.5 | 264.2 | 1.52263 | -0.11295285 |
| 17 | 402.6 | 403 | 402.3 | 268.3 | 268.1 | 267,9 | 1.5018 | -0.12018732 |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

- Applied voltage connected only on primary windings
- Applied voltage should be stable
- Real ratio = $\frac{\text{Rated Voltage Primary}}{\text{Rated Voltage Secondary}}$
- Measured ratio =$(\frac{RY+YB+BR)}{3} / \frac{ry+yb+br}{3})$
- Error = $\frac{\text{Real Ratio} - \text{Measured Ratio}}{\text{Real Ration}} \times 100$
- Test is enough on only one tap position

**2.6 Phase Rotation Check**

| Secondary voltage | Phase1 | Phase2 | Phase3 |
|---|---|---|---|
| | N/A | N/A | N/A |

| Secondary voltage | L 1-2 | L 2-3 | L 3-1 |
|---|---|---|---|
| | N/A | N/A | N/A |

N.B: Secondary Line Voltage must not be greater than 415 VA

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer(Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.00/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

**2.7 Function operation test**

**Temperature sensor/relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm Set Value | OK | |
| 2 | Check Cooling Fan Operation | N/A | |
| 3 | Trip set Value | OK | |
| 4 | Check Upstream Trip | OK | |
| 5 | Check Wiring Connection | OK | Internal only |

**Buchloz relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm set value | OK | |
| 2 | Trip set value | OK | |
| 3 | Wiring Connection | OK | Internal only |

**Transformer operation**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Oil low level alarm value | OK | MAX |
| 2 | Oil low level trip value | OK | MIN |
| 3 | Oil temperature alarm value | OK | 90 °C |
| 4 | Oil temperature trip value | OK | 100°C |
| 5 | Winding temperature alarm value | OK | 110°C |
| 6 | Winding temperature trip value | OK | 120°C |
| 7 | Pressure relief alarm value | N/A | |
| 8 | Pressure relief trip value | OK | 0.70 Bar |

Comments:

Client (PPC): Mohamed Ibrahim M. Omar

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1A |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283175 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.85 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20500 | Energization date | | | |

## 3. Pre-energization checks

| # | Description | Result | Remark |
|---|---|---|---|
| 3.1 | Check that transformer is clean and safe to energize. | | |
| 3.2 | Check that Barriers, covers and shutters are installed in its place (if found). | | |
| 3.3 | Verify correct equipment connection to earth link. | | |
| 3.4 | Neutral connection to earth link. | | |
| 3.5 | Check the primary and secondary connection status. | | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer(Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02 09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B. |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

## 1. Pre-commissioning inspection

| # | Description | Result | Remark |
|---|---|---|---|
| 1.1 | Verify that equipment name plates are according to the corresponding drawings. | OK | |
| 1.2 | Make a close examination for shipping brackets or fixtures that may not have been removed during installation. | OK | |
| 1.3 | Verify appropriate anchorage, fixation, required area clearances, physical damage, and cleanliness. | NOT OK | The room and transformer must be clean |
| 1.4 | Inspect the physical and mechanical condition of the equipment for any visual damage specially at bushing areas. | OK | |
| 1.5 | Verify that the installation ground is correctly leveled. | OK | |
| 1.6 | Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method. | OK | |
| 1.7 | Verify that fixed tap connections are as per the drawings. | OK | |
| 1.8 | Check CT's ratings and polarity (Visual). | OK | |
| 1.9 | Verify connection of all alarm, control, and trip circuits for temperature, pressure relief device, pressure fault relay and any other if found. | OK | |
| 1.10 | Verify that the control and alarm settings for temperature indicators are as specified. | OK | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

| # | Description | Result | Remark |
|---|---|---|---|
| 1.11 | Verify that customer connections to remote power, operators, interlocks, and indicators have been made. | OK | |
| 1.12 | Verify correct liquid level and oil level indicators. | OK | |
| 1.13 | Inspect for any oil leaks. | OK | |
| 1.14 | Ensure all drain valves are fully closed | OK | |
| 1.15 | Verify the installation of the pressure relief valve. | OK | |
| 1.16 | Check Silica Gel installation, level and color. | OK | |
| 1.17 | Check Buckloz relay physical condition and assembly. | OK | |

## 2. Commissioning checks

| # | Description | Result | Remark |
|---|---|---|---|
| 2.1 | Availability of the required auxiliary supply for control operation. | OK | |
| 2.2 | Cooling system operate correctly and check temperature module settings (If found). | OK | |
| 2.3 | Verify the operation of tap changer (On load/ off load) if any. | OK | On load |

Comments:

Client (PPC): Mohamed Ibrahim For. M.omar

Customer (Enppi): Ahmed Nadeem A.Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

**2.4 Insulation resistance test for the winding**

| # | Connection | Test Voltage in DC Volts | Resistance in GΩ | | DAR Value 60Sec/30Sec | Remarks |
|---|---|---|---|---|---|---|
| | | | 30 Sec | 60 Sec | | |
| 1 | HV-(LV+E) | 5000 | 18 GΩ | 26.37 GΩ | 1.46 | |
| 2 | HV-LV | 2500 | 25 GΩ | 32.21 GΩ | 1.28 | |
| 3 | LV-(HV+E) | 1000 | 9.31GΩ | 13.34 GΩ | 1.43 | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem A. Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E90-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

- Applied voltage connected only on primary windings
- Applied voltage should be stable
- Real ratio = $\frac{\text{Rated Voltage Primary}}{\text{Rated Voltage Secondary}}$
- Measured ratio = $\left(\frac{RY+YB+BR)}{3} / \frac{ry+yb+br}{3}\right)$
- Error = $\frac{\text{Real Ratio} - \text{Measured Ratio}}{\text{Real Ration}} \times 100$
- Test is enough on only one tap position

**2.6 Phase Rotation Check**

| Secondary voltage | Phase1 | Phase2 | Phase3 |
|---|---|---|---|
| | N/A | N/A | N/A |

| Secondary voltage | L 1-2 | L 2-3 | L 3-1 |
|---|---|---|---|
| | N/A | N/A | N/A |

N.B: Secondary Line Voltage must not be greater than 415 VA

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

**2.5 Turns ratio test**

| Tap Position | HV Applied volts (V) | | | LV Measured volts (V) | | | Measured Ratio | Error |
|---|---|---|---|---|---|---|---|---|
| | RY | YB | BR | ry | yb | br | | |
| 1 | 402.5 | 402.8 | 402.3 | 219.4 | 219.3 | 219.1 | 1.83582 | -0.135437685 |
| 2 | 402.5 | 402.8 | 402.2 | 222 | 221.9 | 221.6 | 1.81443 | -0.102036375 |
| 3 | 402.5 | 402.8 | 402.1 | 224.5 | 224.3 | 224.1 | 1.79432 | -0.148264886 |
| 4 | 402.4 | 402.8 | 402.1 | 227.1 | 227 | 226.7 | 1.77335 | -0.138109049 |
| 5 | 402.4 | 402.8 | 402.1 | 229.8 | 229.7 | 229.4 | 1.7525 | -0.14308525 |
| 6 | 402.4 | 402.8 | 402.1 | 232.6 | 232.5 | 232.2 | 1.73139 | -0.124337092 |
| 7 | 402.4 | 402.8 | 402.1 | 235.4 | 235.3 | 235 | 1.71078 | -0.143431362 |
| 8 | 402.4 | 402.8 | 402.1 | 238.4 | 238.2 | 238 | 1.68948 | -0.112639252 |
| 9A/B/C | 402.4 | 402.8 | 402.1 | 241.4 | 241.2 | 241 | 1.66846 | -0.107794362 |
| 10 | 402.4 | 402.8 | 402.1 | 244.4 | 244.2 | 244 | 1.64797 | -0.124979992 |
| 11 | 402.4 | 402.8 | 402.1 | 247.6 | 247.4 | 247.1 | 1.62687 | -0.115058099 |
| 12 | 402.4 | 402.8 | 402.1 | 250.8 | 250.6 | 250.3 | 1.60609 | -0.115346155 |
| 13 | 402.4 | 402.8 | 402.1 | 254.1 | 253.9 | 253.6 | 1.58522 | -0.118863335 |
| 14 | 402.4 | 402.8 | 402.1 | 257.5 | 257.3 | 257.3 | 1.56366 | -0.069231826 |
| 15 | 402.4 | 402.8 | 402.1 | 260.9 | 260.8 | 260.5 | 1.54347 | -0.116787716 |
| 16 | 402.5 | 402.9 | 402.2 | 264.5 | 264.4 | 264 | 1.52302 | -0.13858047 |
| 17 | 402.5 | 402.9 | 402.3 | 268.2 | 268.1 | 267.7 | 1.50211 | -0.140961857 |

Comments:

Client (PPC): Mohamed Ibrahim For. M. omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend
"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| Schneider Electric | transformers testing and commissioning check list | Ref: TR-CK-02<br>Rev: 02.09/2018 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176-01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lts/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

**2.7 Function operation test**

**Temperature sensor/relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm Set Value | OK | |
| 2 | Check Cooling Fan Operation | N/A | |
| 3 | Trip set Value | OK | |
| 4 | Check Upstream Trip | OK | |
| 5 | Check Wiring Connection | OK | Internal only |

**Buchloz relay**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Alarm set value | OK | |
| 2 | Trip set value | OK | |
| 3 | Wiring Connection | OK | Internal only |

**Transformer operation**

| # | Description | Result / value | Remark |
|---|---|---|---|
| 1 | Oil low level alarm value | OK | MAX |
| 2 | Oil low level trip value | OK | MIN |
| 3 | Oil temperature alarm value | OK | 90°C |
| 4 | Oil temperature trip value | OK | 100°C |
| 5 | Winding temperature alarm value | OK | 110°C |
| 6 | Winding temperature trip value | OK | 120°C |
| 7 | Pressure relief alarm value | N/A | |
| 8 | Pressure relief trip value | OK | 0.70 Bar |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable



Internal

| | | | | | |
|---|---|---|---|---|---|
| Date | 14/6/2021 | Order Number | E99-0001 | Site Location | Suez |
| Customer | Enppi | Project | Agrood 1 (Area 030) | Equip. Tag | 030-SUB-PTR-1B |
| Rated Power kVA | 8000 -10.000 | Service Voltage | 11000/6600 | TR Serial# | 283176 - 01 |
| Rated HV @ no-load | 11000 | Rated LV @ no-load | 6600 | Phases | 3 |
| Rated current - HV | 419.9 -524.9 | Rated current - LV | 699.8 – 874.8 | Frequency (Hz) | 50 |
| Cooling type | ONAN/ONAF | Manufacturing year | 09/2020 | Vector group | DYn11 |
| Impedance Voltage % | 7.82 | Temp. rise oil/winding - °C | 45-55k | Cooling oil lls/kg | 4400 |
| Total mass kG | 20-500 | Energization date | | | |

## 3. Pre-energization checks

| # | Description | Result | Remark |
|---|---|---|---|
| 3.1 | Check that transformer is clean and safe to energize. | | |
| 3.2 | Check that Barriers, covers and shutters are installed in its place (if found). | | |
| 3.3 | Verify correct equipment connection to earth link. | | |
| 3.4 | Neutral connection to earth link. | | |
| 3.5 | Check the primary and secondary connection status. | | |

Comments:

Client (PPC): Mohamed Ibrahim For. M. Omar

Customer (Enppi): Ahmed Nadeem

Schneider rep.: Khamis Ramadan

Legend

"Ok": Successfully passed "NOK": Didn't pass "N.A": Not applicable

# Site Commissioning for AVR of Power Transformer 8 MVA 11 / 6.6 KV (TR-A)

TECHNO MASTER C.R 40960 El Maadi - Cairo

Made in Germany www.a-eberle.de

Typ: REG-DA Nr.: M20063393

Art.- Nr. 119.2055.007

Software - Version: 2.27

B0 Panel-mounting or wall-mounting version
(H x W x D) 307 x 250 x 102 mm
I0 Serial Interface COM1 Sub-D
H0 Power supply external max. 33 VA
AC 85V...110V...264V, 50...60 Hz
DC 88V...220V... 280V
F1 Input current (rated value) Ir = 1 A
M1 Three-wire three-phase; balanced load

S0 without Recorder function
T0 without Transformer monitoring
K1 with firmware for parallel operation
E00 without Analogue inputs and outputs

D0 16 digital inputs AC/DC 48 V...250 V (E1...E16)

C00 without additional inputs and outputs

R1 with interface RS485 (COM 3)
Integrated Protocol Interface according to:
XW00 without
L0 without

A2 Display language English

| Tested by: Moustafa Elgendy | Witnessed by: Ahmed Nadeem | Witnessed by: Mohamed Ibrahim | |
|---|---|---|---|
| Company: TechnoMaster | Company: Enppi | Company: PPC | Page 1 of 5 |
| Signature: M Elgendy | Signature: | Signature: | |

# AVR SITE COMMISSIONING

## 1. AVR TEST REPORT

- **Test objective:**
  Checking the AVR manual/auto operations, and check the limit values of the AVR (overcurrent block, under voltage block, and over voltage block).

- **Procedure:**
  1. the manual operation of the AVR (raise & lower)
  2. Apply voltage equal to the desired value, AVR should not react.
  3. Apply voltage greater than the desired value by more than 4%, AVR should LOWER the voltage (as lower a tap) after Tl=60 seconds.
  4. Apply voltage less than the desired value by more than 4%, AVR should RAISE the voltage (as raise a tap) after Tl=60 seconds.
  5. Apply voltage greater than the desired value by more than 8%, AVR should LOWER the voltage (as lower a tap) after T2=10 seconds.
  6. Apply voltage less than the desired value by more than 8%, AVR should RAISE the voltage (as raise a tap) after T2=10 seconds.
  7. Apply voltage greater than the over voltage limit value (110%), AVR should block and >V signal will appear after 3Sec. if the voltage stay at the same level for 4Sec more, inhibit high signal will appear.

8. Apply voltage less than the under-voltage limit value (90%), AVR should block and <V signal will appear after 3Sec. if the voltage stay at the same level for 4Sec more, inhibit low signal will appear.

9. Apply voltage greater or lower than the desired value by more than 4%, in the same time inject current more than the overcurrent limit value (110%), AVR should block and >I signal will appear instantanous.

10. Record all the results.

TECHNOMASTER C.R 40980 El Isaoky st Maadi - Cairo - Egypt

1. Setting

| Item | Value |
|---|---|
| Set point of Primary Voltage | 6.6 KV |
| Set point of Secondary Voltage | 110 V |
| Desired Value | +/- 4% |
| T1 | 60 Sec. |
| T2 | 10 Sec. |
| Over Voltage | 10% |
| Under Voltage | -10 % |
| Over Current | 110 % |

2. **Programmable Led**

| No | Item | Remark |
|---|---|---|
| 1 | Remote | OK |
| 2 | Local | OK |
| 3 | < V | OK |
| 4 | >V | OK |
| 5 | Inh. High | OK |
| 6 | Inh. Low | OK |
| 7 | Par.prog | Ok |
| 8 | Tc in prog | Ok |
| 9 | Up | Ok |
| 10 | Down | Ok |
| 11 | >I | Ok |

3. Manual operation is working properly input and Output as Scheme during carry out Function

TECHNOMASTER C.R 40980 El Iaselky st.Maadi - Cairo - Egypt

## 4. Automatic operation

a. Measurement:

| Applied voltage (V) | Reading voltage (KV) | Applied current (A) | Reading Current (A) |
|---|---|---|---|
| 63.5 | 6.597 | 5 | 1252 |

a. Test Results:

| Applied voltage (V) | Applied current (A) | AVR behavior | Result |
|---|---|---|---|
| 63.5 | 5 | No reaction | OK |
| 66.5 | 5 | Lower a tap after Tl=60 sec so on. | OK |
| 60.5 | 5 | Raise a tap after Tl=60 sec so on. | OK |
| 69 | 5 | Lower a tap after T2=10 sec so on. | OK |
| 58 | 5 | Raise a tap after T2=10 sec so on. | OK |
| 57 | 5 | AVR blocked due to UNDER-VOLTAGE &Inhibit Low | OK |
| 70 | 5 | AVR blocked due to OVER-VOLTAGE &inhibit high | OK |
| 66.5 | 5.6 | AVR blocked due to OVER-CURRENT | OK |
| 60.5 | 5.6 | AVR blocked due to OVER-CURRENT | OK |

TECHNOMASTER C.R 40990 Cairo - Egypt

# Site Commissioning for AVR of Power Transformer 8 MVA 11 / 6.6 KV (TR-B)

TECHNO MASTER C.R 40980 El Iasalky st Maadi - Cairo

Made in Germany www.a-eberle.de

Typ: REG-DA Nr.: M20063394

Art.- Nr. 119.2055.007

Software - Version: 2.27

B0 Panel-mounting or wall-mounting version (H x W x D) 307 x 250 x 102 mm
I0 Serial Interface COM1 Sub-D
H0 Power supply external max. 33 VA AC 85V...110V...264V, 50...60 Hz DC 88V...220V... 280V
F1 Input current (rated value) Ir = 1 A
M1 Three-wire three-phase; balanced load

S0 without Recorder function
T0 without Transformer monitoring
K1 with firmware for parallel operation
E00 without Analogue inputs and outputs

D0 16 digital inputs AC/DC 48 V...250 V (E1 ... E16)

C00 without additional inputs and outputs

R1 with interface RS485 (COM 3) Integrated Protocol Interface according to
XY00 without
L0 without

AZ Display language English

| Tested by: Moustafa Elgendy | Witnessed by: Ahmed Nadeem | Witnessed by: Mohamed Ibrahim | |
|---|---|---|---|
| Company: TechnoMaster | Company: Enppi | Company: PPC | Page 1 of 5 |
| Signature: M.Elgendy | Signature: | Signature: For: M. Omar | |

# AVR SITE COMMISSIONING

## 1. AVR TEST REPORT

- **Test objective:**
  Checking the AVR manual/auto operations, and check the limit values of the AVR (overcurrent block, under voltage block, and over voltage block).

- **Procedure:**
  1. the manual operation of the AVR (raise & lower)
  2. Apply voltage equal to the desired value, AVR should not react.
  3. Apply voltage greater than the desired value by more than 4%, AVR should LOWER the voltage (as lower a tap) after Tl=60 seconds.
  4. Apply voltage less than the desired value by more than 4%, AVR should RAISE the voltage (as raise a tap) after Tl=60 seconds.
  5. Apply voltage greater than the desired value by more than 8%, AVR should LOWER the voltage (as lower a tap) after T2=10 seconds.
  6. Apply voltage less than the desired value by more than 8%, AVR should RAISE the voltage (as raise a tap) after T2=10 seconds.
  7. Apply voltage greater than the over voltage limit value (110%), AVR should block and >V signal will appear after 3Sec. if the voltage stay at the same level for 4Sec more, inhibit high signal will appear.

8. Apply voltage less than the under-voltage limit value (90%), AVR should block and <V signal will appear after 3Sec. if the voltage stay at the same level for 4Sec more, inhibit low signal will appear.

9. Apply voltage greater or lower than the desired value by more than 4%, in the same time inject current more than the overcurrent limit value (110%), AVR should block and >I signal will appear instantaneous.

10. Record all the results.

TECHNOMASTER C.R 40980 El Iasalky st Maadi - Cairo - Egypt

1. Setting

| Item | Value |
|---|---|
| Set point of Primary Voltage | 6.6 KV |
| Set point of Secondary Voltage | 110 V |
| Desired Value | +/- 4% |
| T1 | 60 Sec. |
| T2 | 10 Sec. |
| Over Voltage | 10% |
| Under Voltage | -10 % |
| Over Current | 110 % |

2. **Programmable Led**

| No | Item | Remark |
|---|---|---|
| 1 | Remote | OK |
| 2 | Local | OK |
| 3 | < V | OK |
| 4 | >V | OK |
| 5 | Inh. High | OK |
| 6 | Inh. Low | OK |
| 7 | Par.prog | Ok |
| 8 | Tc in prog | Ok |
| 9 | Up | Ok |
| 10 | Down | Ok |
| 11 | >I | Ok |

3. Manual operation is working properly input and Output as Scheme during carry out Function

TECHNOMASTER C.R 40980 El Iaselky st Maadi - Cairo - Egypt

4. <u>Automatic operation</u>

a. Measurement:

| Applied voltage (V) | Reading voltage (KV) | Applied current (A) | Reading Current (A) |
|---|---|---|---|
| 63.5 | 6.597 | 5 | 1252 |

a. Test Results:

| Applied voltage (V) | Applied current (A) | AVR behavior | Result |
|---|---|---|---|
| 63.5 | 5 | No reaction | OK |
| 66.5 | 5 | Lower a tap after Tl=60 sec so on. | OK |
| 60.5 | 5 | Raise a tap after Tl=60 sec so on. | OK |
| 69 | 5 | Lower a tap after T2=10 sec so on. | OK |
| 58 | 5 | Raise a tap after T2=10 sec so on. | OK |
| 57 | 5 | AVR blocked due to UNDER-VOLTAGE &Inhibit Low | OK |
| 70 | 5 | AVR blocked due to OVER-VOLTAGE &inhibit high | OK |
| 66.5 | 5.6 | AVR blocked due to OVER-CURRENT | OK |
| 60.5 | 5.6 | AVR blocked due to OVER-CURRENT | OK |

TECHNOMASTER C.R 40980 Cairo - Egypt

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.10- Electrical Pre-Commissioning Check Lists

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/1-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | @ Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/1-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P2-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi

# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P2-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | **GENERAL:** | | |
| 1.1 | Construction punch list to be checked. | ✓ | |
| 1.2 | Check transformer assembly as per General Arrangement Drawing. | ✓ | |
| 1.3 | Verify equipment nameplate ratings are in accordance with the drawings. | ✓ | |
| 1.4 | Inspect the physical and mechanical condition of the equipment for any visual damage. | ✓ | |
| 1.5 | Inspect radiator fins, conservator tank, joints for leakage after oil filling or top-up. | ✓ | |
| 1.6 | Inspect all bushings for cracks. | ✓ | |
| 1.7 | Inspect silica gel for normal color. | ✓ | |
| 1.8 | Inspect and ensure cleanliness of all marshalling boxes, junction boxes, …etc | ✓ | |
| 1.9 | Check tap changer padlocking facility. | ✓ | |
| 1.10 | Check earthing connections to the earthing grid. | ✓ | |

**REMARKS AND OBSERVATIONS :**

Refer to schnider check list & tests Certificats

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0028 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1.11 | All supports needed for power and control cables to be checked. | ✓ | |
| 1.12 | Wiring of control and protection devices to be checked. | ✓ | |
| 1.13 | Check installation against supplier installation procedure and instructions. | ✓ | |
| 1.14 | Bus duct(s) connections to be checked and inspected according to the approved supplier documents and recommendations. | N/A | |
| 1.15 | Check components of the remote control panel (function, tap and physical check, assembly, connections as per approved documents,.etc). | ✓ | |
| 1.16 | Perform a transformer turns-ratio test. | ✓ | |
| 1.17 | Perform dielectric tests of transformer oil (*). | ✓ | |
| 1.18 | Check oil level or supply and fill up with oil as per specifications. | ✓ | |
| 1.19 | Check C.T rating and polarity w.r.t approved drawings. | ✓ | |
| 1.20 | Check for proper tap position. | ✓ | |
| 1.21 | Check winding insulation resistance (H.V to earth, L.V to earth & H.V to L.V) (**). | ✓ | |

**REMARKS AND OBSERVATIONS :**

(*) Insulation on transformer oil sample (Breakdown test)

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | ® Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0028 (03/14)

Enppi

# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1.22 | Check & record insulation resistance of all auxiliaries & control wiring (MΩ), using 500 V megger. | ✓ | |
| 1.23 | Verify that the control and alarm settings on temperature indicators are as specified. | ✓ | |
| 1.24 | Using the calibrated torque-wrench method, verify that the tightness of accessible bolted electrical connections w.r.t supplier standard. | ✓ | |
| 2 | **OFF-LOAD TAP CHANGER:** | | |
| 2.1 | Ensure that the tap changer is Padlockable in all positions. | ✓ | |
| 2.2 | Check tap-selector switch moves correctly in all positions. | ✓ | |
| 2.3 | Check tap positions clearly marked in line with the data given on the rating plate. | ✓ | |
| 2.4 | Check the tap provided with metallic handle to allow operation without the need of tools. | ✓ | |
| 3 | **ON-LOAD TAP CHANGER:** | | |
| 3.1 | Check devices (tap and physical check, assembly, connections as per approved documents, etc) of the tap changer oil compartment: | | |
| | a) Oil level indicator. | ✓ | |

**REMARKS AND OBSERVATIONS :**

(**) - H.V terminals: 5000 V megger, min. 150 MΩ.
- L.V terminals: 1000 V megger, min. 10 MΩ.
- H.V/L.V termerminals: 5000 V megger, min. 150 MΩ.
(Manufacture's test voltage & minimum values for insulation resistance should be referenced)

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0028 (03/14)

Enppi

# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| | b) Oil temperature indicator. | ✓ | |
| | c) Pressure device. | ✓ | |
| | d) Winding temperature indicator. | ✓ | |
| | e) Buchholz oil/gas device. | ✓ | |
| | f) Oil sampling connection. | ✓ | |
| | g) One filling/filter connection valve. | ✓ | |
| | h) One drain/filter connection valve. | ✓ | |
| | i) A breather with a silica gel dehydrating capsule. | ✓ | |
| 3.2 | Check the motor drive shall include but not limited to the following: | | |
| | a) Padlockable incoming supply switch. | ✓ | |
| | b) Manual operation facilities. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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Enppi



# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| | c) Local control facilities. | ✓ | |
| | d) Local/remote selector switch. | ✓ | |
| | e) Local mechanical tap position indicator. | ✓ | |
| | f) Direction of rotation protection. | ✓ | |
| | g) Tap status indication lamps. | ✓ | |
| 4 | Equipment test inspection report and certificate to be checked and acceptance criteria values of the above mentioned tests to be revised. | ✓ | |
| 5 | Check availability of vendor documents including commissioning and start-up instructions. | ✓ | |
| 6 | Calibration test certificate of testing equipment to be checked. | N/A | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C2-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C2-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C2-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C2-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobhy | ® Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/3-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/3-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/3-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sheif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
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| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/3-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
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| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/2-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
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| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
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| **ITEM TAG No.** | : P/2-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
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| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/2-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sabh | ® Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/2-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | ® Islam Sherif | |
| SIGNATURE | Sabh | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

**INSULATION TEST**

**EL-31 A**

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**TABLE [I]**

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables (power/ control) are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, tightness, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs. | ✓ | |
| 8 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 9 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 10 | Tie wraps to be used for cable and wires fixation. | ✓ | |
| 11 | Cable connections shall be torque tested. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Check that buried cables are correctly covered and protected. | N/A | |
| 13 | Trench markers to be checked w.r.t approved documents. | N/A | |
| 14 | Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 15 | Inspect cable laid in trenches, segregation and protection. | N/A | |
| 16 | Cables to be tested (continuity/insulation resistance). (*) | ✓ | |
| 17 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 18 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 19 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

(*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | ® Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

## INSULATION TEST

## LOW VOLTAGE CABLES

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 1000V | 1000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
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| | | |

**TABLE [III]**

**NOTES:**

Manufacture's test voltage & minimum values for insulation resistance should be referenced.

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

**INSULATION TEST**

**EL-31 A**

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
| | | |
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**TABLE [I]**

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | **GENERAL:** | | |
| 1.1 | Construction punch list to be checked. | ✓ | |
| 1.2 | Check transformer assembly as per General Arrangement Drawing. | ✓ | |
| 1.3 | Verify equipment nameplate ratings are in accordance with the drawings. | ✓ | |
| 1.4 | Inspect the physical and mechanical condition of the equipment for any visual damage. | ✓ | |
| 1.5 | Inspect radiator fins, conservator tank, joints for leakage after oil filling or top-up. | ✓ | |
| 1.6 | Inspect all bushings for cracks. | ✓ | |
| 1.7 | Inspect silica gel for normal color. | ✓ | |
| 1.8 | Inspect and ensure cleanliness of all marshalling boxes, junction boxes, …etc | ✓ | |
| 1.9 | Check tap changer padlocking facility. | ✓ | |
| 1.10 | Check earthing connections to the earthing grid. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1.11 | All supports needed for power and control cables to be checked. | — | |
| 1.12 | Wiring of control and protection devices to be checked. | ✓ | |
| 1.13 | Check installation against supplier installation procedure and instructions. | ✓ | |
| 1.14 | Bus duct(s) connections to be checked and inspected according to the approved supplier documents and recommendations. | NA | |
| 1.15 | Check components of the remote control panel (function, tap and physical check, assembly, connections as per approved documents,.etc). | ✓ | |
| 1.16 | Perform a transformer turns-ratio test. | ✓ | |
| 1.17 | Perform dielectric tests of transformer oil (*). | ✓ | |
| 1.18 | Check oil level or supply and fill up with oil as per specifications. | ✓ | |
| 1.19 | Check C.T rating and polarity w.r.t approved drawings. | ✓ | |
| 1.20 | Check for proper tap position. | ✓ | |
| 1.21 | Check winding insulation resistance (H.V to earth, L.V to earth & H.V to L.V) (**). | ✓ | |

**REMARKS AND OBSERVATIONS :**

(*) Insulation on transformer oil sample (Breakdown test)

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | © Islam Sherif | |
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| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
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| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1.22 | Check & record insulation resistance of all auxiliaries & control wiring (MΩ), using 500 V megger. | ✓ | |
| 1.23 | Verify that the control and alarm settings on temperature indicators are as specified. | ✓ | |
| 1.24 | Using the calibrated torque-wrench method, verify that the tightness of accessible bolted electrical connections w.r.t supplier standard. | ✓ | |
| 2 | **OFF-LOAD TAP CHANGER:** | | |
| 2.1 | Ensure that the tap changer is Padlockable in all positions. | ✓ | |
| 2.2 | Check tap-selector switch moves correctly in all positions. | ✓ | |
| 2.3 | Check tap positions clearly marked in line with the data given on the rating plate. | ✓ | |
| 2.4 | Check the tap provided with metallic handle to allow operation without the need of tools. | ✓ | |
| 3 | **ON-LOAD TAP CHANGER:** | | |
| 3.1 | Check devices (tap and physical check, assembly, connections as per approved documents, etc) of the tap changer oil compartment: | | |
| | a) Oil level indicator. | ✓ | |

**REMARKS AND OBSERVATIONS :**

(**) - H.V terminals: 5000 V megger, min. 150 MΩ.
- L.V terminals: 1000 V megger, min. 10 MΩ.
- H.V/L.V termerminals: 5000 V megger, min. 150 MΩ.
(Manufacture's test voltage & minimum values for insulation resistance should be referenced)

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| | b) Oil temperature indicator. | ✓ | |
| | c) Pressure device. | ✓ | |
| | d) Winding temperature indicator. | ✓ | |
| | e) Buchholz oil/gas device. | ✓ | |
| | f) Oil sampling connection. | ✓ | |
| | g) One filling/filter connection valve. | ✓ | |
| | h) One drain/filter connection valve. | ✓ | |
| | i) A breather with a silica gel dehydrating capsule. | ✓ | |
| 3.2 | Check the motor drive shall include but not limited to the following: | | |
| | a) Padlockable incoming supply switch. | ✓ | |
| | b) Manual operation facilities. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | ® Islam Sherif | |
| SIGNATURE | Sobl | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# POWER TRANSFORMERS
# EL-02 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| | c) Local control facilities. | ✓ | |
| | d) Local/remote selector switch. | ✓ | |
| | e) Local mechanical tap position indicator. | ✓ | |
| | f) Direction of rotation protection. | ✓ | |
| | g) Tap status indication lamps. | ✓ | |
| 4 | Equipment test inspection report and certificate to be checked and acceptance criteria values of the above mentioned tests to be revised. | ✓ | |
| 5 | Check availability of vendor documents including commissioning and start-up instructions. | ✓ | |
| 6 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | Sobl | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0028 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables (power/ control) are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, tightness, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs. | ✓ | |
| 8 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 9 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 10 | Tie wraps to be used for cable and wires fixation. | ✓ | |
| 11 | Cable connections shall be torque tested. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0014 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Check that buried cables are correctly covered and protected. | N/A | |
| 13 | Trench markers to be checked w.r.t approved documents. | N/A | |
| 14 | Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 15 | Inspect cable laid in trenches, segregation and protection. | N/A | |
| 16 | Cables to be tested (continuity/insulation resistance). (*) | ✓ | |
| 17 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 18 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 19 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

(*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | ® Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

## INSULATION TEST

## LOW VOLTAGE CABLES

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 1000V | 1000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**TABLE [III]**

**NOTES:**

Manufacture's test voltage & minimum values for insulation resistance should be referenced.

Enppi



# PRE-COMMISSIONING CHECK LIST
# NEUTRAL GROUNDING RESISTOR
# EL-09 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Fixation, alignment and installation of NER to be checked. | ✓ | |
| 3 | Check equipment tag number and nameplate details are correct in accordance with the data sheet. | ✓ | |
| 4 | Inspection the frame earthing arrangement. | ✓ | |
| 5 | All supports needed for cables to be checked. | ✓ | |
| 6 | Inspect physical and mechanical condition of the equipment and all components for clear damage. | ✓ | |
| 7 | Check gasket and seals are not damaged. | ✓ | |
| 8 | All equipment to be cleaned. | ✓ | |
| 9 | Check the space heater and circuit where fitted. | ✓ | |
| 10 | Check & record resistance of resistor with site conditions. | ✓ | |
| 11 | Verify that the connection of the resistor is as per the approved drawings. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobhi | Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0024 (04/14)

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# PRE-COMMISSIONING CHECK LIST
# NEUTRAL GROUNDING RESISTOR
# EL-09 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | All internal wiring connection are fixed and secure. | ✓ | |
| 13 | Measure the insulation resistance of the resistor to earth. | ✓ | |
| 14 | Perform insulation-resistance tests at the DC test voltage appropriate for the equipment's Maximum Rated Voltage (*) | ✓ | |
| 15 | Equipment test report and inspection certificate to be checked. | ✓ | |
| 16 | Check availability of vendor documents, including commissioning and start-up instructions. | N/A | |
| 17 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

(*) Refer to table [II]

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | Sobh | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# NEUTRAL GROUNDING RESISTOR
# EL-09 A

## INSULATION TEST

## TABLE OF MINIMUM TEST VOLTAGES

| EQUIPMENT RATED VOLTAGE (kV) | TEST VOLTAGE (V) (ONE MINUTE) | MINIMUM INSULATION RESISTANCE (M.OHMS) |
|---|---|---|
| 33 | 5000 | 200 |
| 22 | 5000 | 200 |
| 11 | 5000 | 200 |
| 6.6 | 1000 | 200 |
| 3.3 | 1000 | 200 |
| CONTROL WIRING | 500 | 10 |
| | | |
| | | |

**TABLE [II]**

**NOTES:**

Manufacture's test voltage & minimum values for insulation resistance should be referenced

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables (power/ control) are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, tightness, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs. | ✓ | |
| 8 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 9 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 10 | Tie wraps to be used for cable and wires fixation. | ✓ | |
| 11 | Cable connections shall be torque tested. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Check that buried cables are correctly covered and protected. | N/A | |
| 13 | Trench markers to be checked w.r.t approved documents. | N/A | |
| 14 | Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 15 | Inspect cable laid in trenches, segregation and protection. | N/A | |
| 16 | Cables to be tested (continuity/insulation resistance). (*) | ✓ | |
| 17 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 18 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 19 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

(*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

## INSULATION TEST

## LOW VOLTAGE CABLES

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 1000V | 1000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

TABLE [III]

**NOTES:**

Manufacture's test voltage & minimum values for insulation resistance should be referenced.

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | ® Islam Sherif | |
| SIGNATURE | Sobh | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# NEUTRAL GROUNDING RESISTOR
# EL-09 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Mødule-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Fixation, alignment and installation of NER to be checked. | ✓ | |
| 3 | Check equipment tag number and nameplate details are correct in accordance with the data sheet. | ✓ | |
| 4 | Inspection the frame earthing arrangement. | ✓ | |
| 5 | All supports needed for cables to be checked. | ✓ | |
| 6 | Inspect physical and mechanical condition of the equipment and all components for clear damage. | ✓ | |
| 7 | Check gasket and seals are not damaged. | ✓ | |
| 8 | All equipment to be cleaned. | ✓ | |
| 9 | Check the space heater and circuit where fitted. | ✓ | |
| 10 | Check & record resistance of resistor with site conditions. | ✓ | |
| 11 | Verify that the connection of the resistor is as per the approved drawings. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0024 (04/14)

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# PRE-COMMISSIONING CHECK LIST
# NEUTRAL GROUNDING RESISTOR
# EL-09 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | | |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **DISCIPLINE** | : Electrical |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1B | **SUB-SYSTEM ID** | : 030-EL-001 |
| **REF. DWGs/DOCs** | : | **AREA** | : 30 |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | All internal wiring connection are fixed and secure. | ✓ | |
| 13 | Measure the insulation resistance of the resistor to earth. | ✓ | |
| 14 | Perform insulation-resistance tests at the DC test voltage appropriate for the equipment's Maximum Rated Voltage (*) | ✓ | |
| 15 | Equipment test report and inspection certificate to be checked. | ✓ | |
| 16 | Check availability of vendor documents, including commissioning and start-up instructions. | N/A | |
| 17 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

(*) Refer to table [II]

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# NEUTRAL GROUNDING RESISTOR
# EL-09 A

## INSULATION TEST

## TABLE OF MINIMUM TEST VOLTAGES

| EQUIPMENT RATED VOLTAGE (kV) | TEST VOLTAGE (V) (ONE MINUTE) | MINIMUM INSULATION RESISTANCE (M.OHMS) |
|---|---|---|
| 33 | 5000 | 200 |
| 22 | 5000 | 200 |
| 11 | 5000 | 200 |
| 6.6 | 1000 | 200 |
| 3.3 | 1000 | 200 |
| CONTROL WIRING | 500 | 10 |
| | | |
| | | |

TABLE [II]

**NOTES:**

Manufacture's test voltage & minimum values for insulation resistance should be referenced

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | Sobh | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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| | | |

TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables (power/ control) are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, tightness, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs. | ✓ | |
| 8 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 9 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 10 | Tie wraps to be used for cable and wires fixation. | ✓ | |
| 11 | Cable connections shall be torque tested. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0014 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : 030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Check that buried cables are correctly covered and protected. | N/A | |
| 13 | Trench markers to be checked w.r.t approved documents. | N/A | |
| 14 | Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 15 | Inspect cable laid in trenches, segregation and protection. | N/A | |
| 16 | Cables to be tested (continuity/insulation resistance). (*) | ✓ | |
| 17 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 18 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 19 | Calibration test certificate of testing equipment to be checked. | ✓ | |
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| | | | |

**REMARKS AND OBSERVATIONS :**

(*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# LOW VOLTAGE CABLES
# EL-30 A

## INSULATION TEST

## LOW VOLTAGE CABLES

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 1000V | 1000V | 200 |
| | | |
| | | |
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TABLE [III]

**NOTES:**

Manufacture's test voltage & minimum values for insulation resistance should be referenced.

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/1-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P/1-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Ashraf Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C3-030-SUB-AVR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C3-030-SUB-AVR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
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TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C3-030-SUB-AVR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C3-030-SUB-AVR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
| | | |
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| | | |

TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : G1-030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : G1-030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
| | | |
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| | | |

TABLE [I]

**NOTES:**

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C1-030-SUB-AVR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C1-030-SUB-AVR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

**INSULATION TEST**

**EL-31 A**

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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**TABLE [I]**

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : C1-030-SUB-AVR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

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| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
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| **ITEM TAG No.** | : C1-030-SUB-AVR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | NA | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : G2-030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | islam sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

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| **ITEM TAG No.** | : G2-030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | islam sher | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

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|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
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| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : G2-030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | ® Islam Sherif | |
| SIGNATURE | Sabh | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
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| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
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| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
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| **ITEM TAG No.** | : G2-030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

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|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : G1-030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | (R) Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
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| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
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| **ITEM TAG No.** | : G1-030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

**INSULATION TEST**

**EL-31 A**

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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**TABLE [I]**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

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| **ITEM TAG No.** | : P-030-SUB-AVR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | islam sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# MEDIUM VOLTAGE CABLES
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| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | — | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | — | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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| | | |

TABLE [I]

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

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| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
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| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P-030-SUB-AVR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | ® Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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TABLE [I]

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | ® islam sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-PTR-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

## INSULATION TEST

## EL-31 A

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | islam sherif | |
| DATE | | | |

10000-Z-000-EK7-TMP-0017 (03/14)

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-NER-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobh | ® Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

**INSULATION TEST**

**EL-31 A**

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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**TABLE [I]**

**NOTES:**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P1-030-SUB-NER-1B | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | N/A | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
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**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | Islam Sherif | |
| SIGNATURE | | | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

**INSULATION TEST**

**EL-31 A**

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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**TABLE [I]**

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P2-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 1 | Construction punch list to be checked. | ✓ | |
| 2 | Check cables are correctly fixed to trays and supports. | ✓ | |
| 3 | Check cables through walls or ceilings are correctly sealed. | ✓ | |
| 4 | Check that all cables are installed in accordance with cable lists and approved documents. | ✓ | |
| 5 | Check identification tags of all conductors and wires. | ✓ | |
| 6 | Check connection, termination and joints of cables are correctly executed. | ✓ | |
| 7 | Inspect cables for jacket damage. | ✓ | |
| 8 | Ensure that the correct size and type of crimping lugs have been used. | ✓ | |
| 9 | Check that the bending radius of cables is not less than the minimum established. | ✓ | |
| 10 | Cable markers to be installed before covering buried cables or cables in cable trays. | ✓ | |
| 11 | Tie wraps to be used for cable and wires fixation. | ✓ | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | Sobhy | ® Islam Sh... | |
| DATE | | | |

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Enppi



# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

| | | | |
|---|---|---|---|
| **PROJECT TITLE** | : EDPCCrude Oil Tank Farms Priject, Agrood Area 30 (Module-01) | | |
| **PROJECT NUMBER** | : 1251-100 | **DISCIPLINE** | : Electrical |
| **SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SYSTEM ID** | : 030-EL-001 |
| **SUB-SYSTEM NAME** | : Substation Power Transformers 11/6.6kV System | **SUB-SYSTEM ID** | : 030-EL-001 |
| **ITEM TAG No.** | : P2-030-SUB-PTR-1A | **AREA** | : 30 |
| **REF. DWGs/DOCs** | : | | |

| No. | DESCRIPTION | RESULT OK/NA/PL | PL ITEM No. |
|---|---|---|---|
| 12 | Trench markers to be checked w.r.t approved documents. | ✓ | |
| 13 | Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables. | ✓ | |
| 14 | Inspect cable laid in trenches, segregation and protection. | ✓ | |
| 15 | Cables to be tested (continuity/insulation resistance).(*) | ✓ | |
| 16 | Equipment test report and inspection certificate to be-checked. | ✓ | |
| 17 | Check availability of vendor documents, including commissioning and start-up instructions. (If Any) | NA | |
| 18 | Calibration test certificate of testing equipment to be checked. | ✓ | |
| | | | |
| | | | |
| | | | |
| | | | |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY | CONST. CONTRACTOR | ENPPI | CUSTOMER |
|---|---|---|---|
| NAME | | | |
| SIGNATURE | | Islam Sherif | |
| DATE | | | |

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# PRE-COMMISSIONING CHECK LIST
# MEDIUM VOLTAGE CABLES
# EL-31 A

**INSULATION TEST**

**EL-31 A**

| CABLE VOLTAGE LEVEL | D.C TEST VOLTAGE | MINIMUM INSULATION RESISTANCE (M.OHMS). |
|---|---|---|
| 3.3kV | 2500V | 200 |
| 6.6kV & Above | 5000V | 200 |
| | | |
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**TABLE [I]**

**NOTES:**

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|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 12.11- Electrical Supplier Check Lists & Reports

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 13- Electrical Commissioning

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 13.01- Electrical -Commissioning Check Lists

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 13.02- Electrical Supplier Check Lists & Reports

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 14- Red Marked-up Drawings

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 14.01- P&ID

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 14.01- P&ID

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 14.02- Instrumentation Drawings

| | |
|---|---|
| System ID | 030-EL-001 |
| System Description | Substation Power Transformers 11/6.6kV |

# 14.03- Electrical Drawings